3/15/05 U6600-2F

Bulletin No. 455 August 1984

EMPLOYMENT GROWTH IN THE NORTHEAST: 1970-1979

Steven E. Hastings
and
Jeffrey D. White

Agricultural Experiment Station
University of Delaware
Newark, DE 19717-1303

THE AUTHORS

Steven E. Hastings and Jeffrey D. White are Associate Professor and former Graduate Research Assistant in the Department of Agricultural and Food Economics at the University of Delaware.

ACKNOWLEDGEMENTS

The authors wish to acknowledge the contribution of Brian Dilley who wrote the computer programs for the analysis in this bulletin. The constructive comments of Drs. Theodore E. Fuller, The Pennsylvania State University; Stephen Reiling, University of Maine; Brady J. Deaton, Virginia Polytechnic Institute and State University; and Gerald L. Cole, University of Delaware, who reviewed a draft of the bulletin are also acknowledged.

Published with the approval of the Director of the Delaware Agricultural Experiment Station, College of Agricultural Sciences. The University of Delaware is an Equal Opportunity Employer which encourages applications from qualified minority groups and women.

EMPLOYMENT GROWTH IN THE NORTHEAST: 1970-1979

Steven E. Hastings

and

Jeffrey D. White

Agricultural Experiment Station
University of Delaware
Newark, DE 19717-1303

TABLE OF CONTENTS

	Page
LIST OF TABLES	iii
INTRODUCTION	1
Objective	1
Problem Setting	1
METHODOLOGY	3
The Northeast Study Area	3
Regions	3
Metropolitan/Nonmetropolitan Counties	3
Metropolitan County Types	4
Nonmetropolitan County Types	4
Employment Data	5
Time Period for Analysis	10
Shift-share Analysis	10
The Traditional Model	10
A Modified Model	11
REGIONAL AND STATE EMPLOYMENT GROWTH IN THE NORTHEAST, 1970-1979	15
The Northeast Relative to the United States	15
Employment Growth in the United States	15
Employment Growth in the Northeast	17
Regional Employment Growth	17
New England	17
Middle Atlantic	20
South Middle Atlantic	20
Shift-share Analysis of the Northeast Relative to the United States	20
Within the Region	24
New England	24
Middle Atlantic	26
South Middle Atlantic	26
Summary	29
Regions and States Relative to the Northeast	29
New England	29
New England Employment Growth by State	32
Middle Atlantic	34

Middle Atlantic Employment Growth by State.... 34
South Middle Atlantic..... 36
South Middle Atlantic Employment Growth by State..... 38
Summary..... 39

ANALYSIS OF METROPOLITAN AND NONMETROPOLITAN EMPLOYMENT GROWTH IN THE NORTHEAST..... 40

Metropolitan Counties..... 40
Nonmetropolitan Counties..... 43
Metropolitan and Nonmetropolitan Counties by County Type..... 46
Metropolitan Counties..... 46
Nonmetropolitan Counties..... 48
Summary..... 49

SUMMARY AND CONCLUSIONS..... 50

Conclusions..... 50

BIBLIOGRAPHY..... 52

APPENDIX A..... 56

APPENDIX B..... 64

LIST OF TABLES

		Page
1	County Type by State in the Northeast.....	6
2	Industry Categories by SIC Major Groups, 1967 and 1972.....	8
3	Nondisclosed Employment in the Northeast by Industry and Year.....	9
4	Employment in the United States by Industry, 1970-1979.....	16
5	Employment in the Northeast by Industry, 1970-1979.....	18
6	Employment in New England by Industry, 1970-1979..	19
7	Employment in the Middle Atlantic by Industry, 1970-1979.....	21
8	Employment in the South Middle Atlantic by Industry, 1970-1979.....	22
9	Shift-Share Analysis of the Northeast Relative to the United States, 1970-1979.....	23
10	Shift-Share Analysis of New England Relative to the United States, 1970-1979.....	25
11	Shift-Share Analysis of the Middle Atlantic Region Relative to the United States, 1970-1979...	27
12	Shift-Share Analysis of the South Middle Atlantic Region Relative to the United States, 1970-1979.....	28
13	Summary of Shift-Share Analysis of the Northeast Relative to the United States, 1970-1979.....	30
14	Shift-Share Analysis of New England Relative to the Northeast, 1970-1979.....	31

15 Summary of Shift-Share Analysis of the Northeast by Region and State Relative to the Northeast, 1970-1979..... 33

16 Shift-Share Analysis of the Middle Atlantic Region Relative to the Northeast, 1970-1979..... 35

17 Shift-Share Analysis of the South Middle Atlantic Region Relative to the Northeast, 1970-1979..... 37

18 Metropolitan County Employment in the Northeast by Industry, 1970-1979..... 41

19 Shift-Share Analysis of Northeastern Metropolitan Counties Relative to the Northeast, 1970-1977..... 42

20 Nonmetropolitan County Employment in the Northeast by Industry, 1970-1979..... 44

21 Shift-Share Analysis of Northeastern Nonmetropolitan Counties Relative to the Northeast, 1970-1979..... 45

22 Summary of Shift-Share Analysis of Metropolitan and Nonmetropolitan Counties Relative to the Northeast, 1970-1979..... 47

EMPLOYMENT GROWTH IN THE NORTHEAST: 1970-1979

INTRODUCTION

Rural-urban growth in the decade of the seventies deviated from historic trends. Changing migration patterns evidenced at the close of the sixties became even more pronounced. Along with this came changes in the geographic distribution of economic activity. Metropolitan areas, formerly the center and stimulus of economic growth, experienced serious economic and social problems. Many rural areas, once considered backward and isolated, faced increases in population and industrial activity.

Since the early seventies, regional economists have emphasized the importance of rural areas and their interaction with traditional urban growth centers. The continuation of recent trends highlights the ongoing need for a comprehensive regional approach to the economic and social development of the nation.

Objective

The objective of this study is to examine the spatial and structural trends in employment growth in the northeastern United States during the 1970s. The focus is the comparison of employment growth at county, state and regional levels using shift-share analysis.

Problem Setting

Economic planning and policy formulation require basic economic data on which to base decisions. Deviations from historic trends and structures make this need even more essential.

Most notable among recent changes in the socioeconomic structure of the nation has been the changing distribution of population. For the first time in over 150 years, the nonmetropolitan population of the United States grew at a more rapid rate than that of metropolitan areas. Nationally, population in nonmetropolitan areas increased 15.4 percent compared with a 9.1 percent increase in metropolitan areas (1970-80).[1] Nonmetropolitan population

---

[1] Beale, Calvin L. Rural and Small Town Population Change, 1970-

growth outpaced that of metropolitan areas in all regions of the United States except the South and South Central regions. Only northeastern metropolitan areas experienced an overall decline in population (-2 percent). Nonmetropolitan population growth for the same region was 12.4 percent.

Growth in nonmetropolitan employment during the decade also outpaced that of metropolitan areas. Nationally, between 1970 and 1977 nonfarm wage and salary employment grew by 10.8 percent in metropolitan areas, and by 22.1 percent in nonmetropolitan areas. Regionally, nonmetropolitan employment growth exceeded that for metropolitan areas in all regions, with northeastern metropolitan areas again experiencing the only net decrease.[2]

In contrast to the past, employment growth in manufacturing, a major employment sector, was weak during the decade. This was especially true in the northeastern states where it declined in both metropolitan and nonmetropolitan areas. Nationally, manufacturing represented the weakest nonmetropolitan growth sector, averaging 6.3 percent. The strongest growth sectors in the nonmetropolitan United States were services; mining; finance, insurance and real estate; and construction (39.4, 36.2, 34.2, and 32.1 percent, respectively).

These changing population and employment trends demonstrate the need for continued documentation and research on changing relationships among regions and between rural and urban areas of the country. The authors hope this analysis promotes better understanding of the nature of the economy of the Northeast. Such understanding is vital for regional and local policy formulation and decision-making.

80, United States Department of Agriculture, Economics and Statistics Service, ESS-5, February 1981, p. 1.

[2] Hastings, Steven E. "Delaware's Rural Economy Reflects National Trends," Economic Exchange, Fall 1980, p. 2.

METHODOLOGY

This study utilizes employment data compiled by the Department of Commerce, Bureau of Economic Analysis (BEA). Estimations and modifications performed on these data are discussed in this section. The geographic region is also detailed. Finally, a discussion of shift-share analysis, with an explanation of the particular variant used, is presented.

The Northeast Study Area

For this study, the northeastern United States is composed of 13 states and the District of Columbia. The northeast is characterized by a wide range of economic activity and has experienced considerable changes in industrial structure in the recent past, both internally and relative to the nation as a whole. The region accounts for approximately 27 percent of the nation's population and 28 percent of the nation's employment.

Regions

Analysis of the Northeast focuses on regional, state, metropolitan/nonmetropolitan, and county-type relationships. The Northeast is divided into three major regions: New England (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut), the Middle Atlantic (New York, New Jersey and Pennsylvania), and the South Middle Atlantic (Delaware, Maryland, Washington D.C., Virginia and West Virginia). These regions are analyzed in relation to the nation, the Northeast and each other. Individual states within these regions are also analyzed.

Metropolitan/Nonmetropolitan Counties

County level analysis for the Northeast focuses on the relationship between metropolitan and nonmetropolitan counties, and between 10 county types.[3] Metropolitan counties are delineated according to the size of the metropolitan area of which they are a part. Nonmetropolitan counties are classified according to their geographic proximity to a metropolitan area and the aggregate size of their urban population. County classifications as of

---

[3] Hines, Brown and Zimmer. Social and Economic Characteristics of the Population in Metro and Nonmetro Counties, 1970. Economic Research Service, U.S. Department of Agriculture, Agricultural Economic Report No. 272, March 1975, pg. 4.

1970 are used in analyses of all years covered in this study. The 10 county types are:

Metropolitan County Types

(1) Greater Metropolitan Core: counties located in Standard Metropolitan Statistical Areas (SMSA) having at least one million inhabitants in 1970, and containing the primary central city of greater metropolitan counties.

(2) Greater Metropolitan Fringe: suburban counties in SMSAs having at least one million inhabitants.

(3) Medium Metropolitan: counties of SMSAs having between 250,000 and 999,999 inhabitants.

(4) Small Metropolitan: counties of SMSAs with less than 250,000 inhabitants.

Nonmetropolitan County Types

(5) Urbanized Adjacent: counties contiguous to SMSAs and having an aggregate urban population of at least 20,000 residents.

(6) Urbanized Nonadjacent: counties with 20,000 or more urban residents, not contiguous to an SMSA.

(7) Less Urbanized Adjacent: counties contiguous to an SMSA with urban populations of 2,500 to 19,999.

(8) Less Urbanized Nonadjacent: counties not contiguous to an SMSA, with urban populations of 2,500 to 19,999.

(9) Total Rural Adjacent: counties contiguous to an SMSA with no urban population.

(10) Totally Rural Adjacent: counties not contiguous to an SMSA, and with no urban population.

The number of each county type in each state in the study region is given in Table 1. Virginia and Maryland contain independent city as well as county reporting units. Three of the independent cities, Manassas City, Manassas Park City, and Poquoson City, Virginia, were not separate reporting units prior to 1976. For consistency, these independent cities are recombined with the reporting units in which they were contained prior to 1976, and are, therefore, not found separately in the analysis.

Employment Data

Data used in this study come from the BEA's Average Annual Employment for States and Counties. A number of other secondary sources were considered, including the Census of Population, County Business Patterns and the Census of Agriculture. For the purposes of this study, data compiled by the BEA were found to be most appropriate. In addition to being relatively current, BEA data are available at state and county levels for all years covered in this study.

In compiling its county level employment data, the BEA relies on data generated by various federal and state programs, censuses and nongovernmental sources. Primary among these is the information obtained from state employment security agencies under the State Unemployment Insurance Program. All firms covered by this program are required to file quarterly reports that include both the number of full and part-time workers employed and the wages and salaries disbursed for the quarter. The number and income of farm and nonfarm proprietors are also included in the BEA data. In addition to the reports under the Unemployment Insurance Programs, the BEA utilizes other sources and methods of estimation to support its data, including the Census of Agriculture, Census of Population, and County Business Patterns. This is done to derive a more complete measure of employment in light of differing state regulations regarding the size of firms excluded from coverage under the Unemployment Insurance Program.[4]

The Industrial Categories in Average Annual Employment for States and Counties are reported at the one-digit Standard Industrial Classification (SIC) level for all counties, states and the United States as a whole.[5] The 12

---

[4] Local Area Personal Income 1974-79, U.S. Department of Commerce, Bureau of Economic Analysis, pp. viii-ix, and personal conversations with Regional Economic Information System Branch (REIS) personnel.

[5] The Standard Industrial Classification codes were revised in 1972. Data for years previous to 1972 were collected according to the

Table 1. County Type by State in the Northeast

	— County Type —									
	Metropolitan				Nonmetropolitan					
	1	2	3	4	5	6	7	8	9	10
Maine	—	—	—	3	2	2	2	6	1	—
New Hampshire	—	1	—	1	3	1	1	2	—	1
Vermont	—	—	—	—	—	2	1	5	—	6
Rhode Island	—	—	4	—	1	—	—	—	—	—
Massachusetts	3	1	4	1	2	—	—	—	—	2
Connecticut	1	2	2	1	2	—	—	—	—	—
New York	6	6	17	2	13	1	13	3	1	—
New Jersey	4	5	6	23	3	—	1	—	—	—
Pennsylvania	2	7	15	3	12	2	13	6	3	3
Maryland	1	8	1	—	3	—	2	5	2	2
Delaware	—	—	1	—	1	—	—	1	—	—
Virginia	—	9	18	16	5	5	19	22	21	22
West Virginia	—	—	4	6	—	4	7	13	9	12
TOTAL	17	39	72	35	47	17	59	63	37	48

industry employment categories used in this study and their two-digit SIC classifications are found in Table 2.

Because the BEA obtains data directly from government records, it is required to observe federal and state regulations regarding publication of data that might disclose individual firm activities. Such data are, therefore, withheld from publication. Disclosure avoidance is most often encountered at the county level, where an individual firm's activities are most likely to be discernible. As Table 3 indicates, this problem is most frequent in the Mining and Agricultural Services industries. Because this study focuses on the county in much of its analysis, however, a method of estimating undisclosed data was developed.

When data for particular industries were undisclosed at the county level, state distributions of employment were applied at the county level to estimate the undisclosed industry's employment. This was done in the following manner: (1) The percentage of total employment for each of the 12 industry categories was calculated for each state in the study region. (2) The difference between total county employment and total disclosed employment for that county was divided among the missing industry categories according to the state percentages. This procedure preserves the inter-industry ratio and known county employment totals.

For the years 1970 and 1979, employment figures for Agricultural Services and Mining, and Durable and Nondurable Manufacturing were not disclosed at the state level in Delaware and Washington, D.C. As a result, the estimation procedure could not be applied to counties within Delaware missing data in these four industries. To provide a complete data set, state level industry percentages, where missing, were estimated by extrapolating existing trends in employment growth for that industry. These percentages were then applied to undisclosed county level data in the manner outlined above.

In addition to not disclosing data to protect individual firm activities, the BEA data do not include employment for industry categories containing less than 10 employees. When encountered, these employment levels were estimated to be five employees to minimize the estimation error.

1967 classification. However, no substantial differences exist between 1967 and 1972 codes at the one-digit level. (See Hastings, Steven E. and Frank M. Goode, The Standard Industrial Classification of Establishments, 1957-1977, University of Delaware Agricultural Experiment Station Bulletin 432, April 1980.)

Table 2. Industry Categories by SIC Major Groups, 1967 and 1972

Industry	Major Groups-1967 SIC	Major Groups-1972 SIC
Agriculture		
Farming	01	01, 02
Ag Services	07, 08, 09	07, 08, 09
Mining	10, 11, 12, 13, 14	10, 11, 12, 13, 14
Construction	15, 16, 17	15, 16, 17
Manufacturing		
Nondurable	20, 21, 22, 23, 26, 27 28, 29, 30, 31	20, 21, 22, 23, 26, 27 28, 29, 30, 31
Durable	19, 24, 25, 32, 33, 34 35, 36, 37, 38, 39	24, 25, 32, 33, 34, 35 36, 37, 38, 39
Transportation and Public Utilities	40, 41, 42, 44, 45, 46 47, 48, 49	40, 41, 42, 43, 44, 45 46, 47, 48, 49
Wholesale Trade	50	50, 51
Retail Trade	52, 53, 54, 55, 56, 57 58, 59	52, 53, 54, 55, 56, 57 58, 59
Finance, Insurance and Real Estate	60, 61, 62, 63, 64, 65 66, 67	60, 61, 62, 63, 64, 65 66, 67
Services	70, 72, 73, 75, 76, 78 79, 80, 81, 82, 84, 86 88, 89	70, 72, 73, 75, 76, 78 79, 80, 81, 82, 83, 84 86, 88, 89
Government	91, 92, 93, 94	91, 92, 93, 94, 95, 96 97

Table 3. Nondisclosed Employment in the Northeast by Industry and Year

Industry	Year	
	1970	1979
	- Number of Counties -	
Agriculture		
Farming	0	0
Ag Service	91	121
Mining	126	133
Construction	38	35
Manufacturing		
Nondurable	15	106
Durable	18	107
Transportation	35	67
Wholesale	33	66
Retail	0	0
Finance	21	23
Services	33	30
Government	0	0

Time Period for Analysis

The time period for analysis in this study is the decade of the seventies (1970-1979). Employment cycles, i.e. levels of unemployment, were comparable in the first and last years of this period, helping minimize bias in the results that cyclical fluctuations in the nation's economy might cause.

Shift-share Analysis

Shift-share analysis is used to identify sources of differential employment growth in the Northeast. The use of shift-share analysis has grown rapidly since it was developed by Daniel Creamer in 1942. Further modifications by Ashby [1964] and Perloff, Dunn, Lampard and Muth [1960], among others, brought the technique to prominence. Today, it is used widely in regional economics. Curtis [1971], Kennard [1974], Petrulis [1979] and Floyd [1971], among others, have utilized shift-share in recent regional and local studies. Several adaptations and modifications of the original technique have been developed in response to various criticisms of the technique.[6]

The Traditional Model

The traditional shift-share model is designed to isolate shifts in employment, income, or any other measurable variable in order to explain structural transformations in the economy of the region under analysis. The objective is to determine if an observed pattern of growth in a local region is the result of overall trends, local specialization or local characteristics.

To identify the forces acting on a local region's development and their relative influence, shift-share analysis defines three components of regional growth: Standard Growth, Regional Mix and Local Share. In terms of employment, the formulations for these components are as follows:

$$\text{Actual Growth} = \text{Standard Growth} + \text{Industrial Mix} + \text{Local Share}$$

OR

$$(Ri)ri = (Ri)s + Ri(si - s) + Ri(ri - si)$$

Ri = Base year employment for industry i in local region.

---

[6] In response to the increasing use of shift-share analysis, its legitimacy as a tool for analyzing regional growth has come under considerable debate. For a discussion of the criticisms of shift-share analysis, see White, 1983.

ri = Rate of growth in employment for industry i in local region.
si = Rate of growth in employment for industry i in base region.
s = Rate of growth in employment in all industries in base region.

The Standard Growth component reflects the amount by which employment in an industry would have increased in a local region had it grown at a rate equivalent to the base region rate of growth in employment in all industries during the period of analysis. The difference between Actual Growth of employment and Standard Growth is the Net Relative Change, attributable to local factors which are isolated in the remaining two components, Industrial Mix and Local Share.

The Industrial Mix component measures the extent to which a local region specializes in fast or slow growth industries. A fast growth industry has a growth rate in the base region that exceeds the overall base region growth rate. A slow growth industry has a rate of growth in the base region below the overall base region growth rate for the period.

The second component, Local Share, measures the rate of growth of employment in the local region relative to the base region. If employment grows faster in a local industry than for that industry in the base region, the local share is positive, indicating local advantages for that industry.

A region's total employment change for a given industry can be obtained by summing the Standard Growth, Industrial Mix and Local Share Components for that industry. Summing all components for all industries yields the region's total change in employment. A negative aggregate Local Share component would suggest that a region possessed certain characteristics disadvantageous to the growth of the industries. The aggregate Industrial Mix component is positive for a region that contains a greater proportion of fast growth industries. Likewise, a negative value for the component indicates a predominance of slow growth industries in a region.

A Modified Model

Given the objectives of this study, a variant of the traditional shift-share model was found most suitable in providing a detailed picture of the economic structure of the region of study and its change over time. The modified model, developed by Kalbacher [1979], presents its results in percentage form rather than absolute numbers as in the traditional model. In addition, the modified model uses industry specific rather than overall growth rates in characterizing the base region economy. The adaptations make interregional and intertemporal comparisons easier and more meaningful.

The algebraic formulation of the modified model is as follows:

Actual Growth = Standard Growth + Industrial Mix + Local Share
OR

$$(Ri/R)ri = (Si/S)si + (Ri/R - Si/S)si + Ri/R(ri - si)$$

where:

R = Base year employment in all industries in local region.
Ri = Base year employment in industry i in local region.
S = Base year employment in all industries in base region.
Si = Base year employment in industry i in base region.
ri = rate of growth of employment in industry i in local region.
si = rate of growth of employment in industry i in base region.

The interpretation of the components of this modified shift-share analysis differs somewhat from the traditional model. The Actual Growth component [(Ri/R)ri] measures the growth in employment in an industry in a local region weighted by the relative size of the industry in the local region as measured by the percent of total employment. Whereas in the traditional model, the Actual Growth component yields the actual number of employees gained (or lost) during the period, actual growth in the modified model measures the industry's contribution to the overall growth rate in the local region.

The Standard Growth component [(Si/S)si] is analogous to the Actual Growth component, except that it is applied to the base region. It is the growth in a base region industry's employment weighted by the industry's percent of base region's total employment. This is the contribution of the industry to the overall growth rate of the base region. This differs from the traditional Standard Growth component in two ways. First, the component measures the employment change as a percent rather than as an absolute number. The second difference concerns the employment levels being analyzed. Standard Growth in the modified model is based on the employment in an industry in the base region and the increase in that employment.

The difference between Actual Growth and Standard Growth is Net Relative Change. This component measures the difference between the contribution of an industry to growth of employment in a local region and the contribution of the industry to growth in the base region. A positive Net Relative Change indicates that the industry's contribution to growth of employment in the local region exceeds that in the base region. A negative Net Relative change indicates that the industry's contribution in the local region is less than in the base region. As in traditional shift-share, Net Relative Change is disaggregated into an Industrial Mix component and a Local Share component.

The Industrial Mix component [(Ri/R - Si/S)si] in the modified model measures the effect of the local region's industrial concentration on an industry's Net Relative Change. Its value is determined by the relative

concentration of the industry in the local region and the growth of the industry in the base region.

It can be assumed that a positive industrial mix benefits the local region, while a negative value is a detriment. When both the first and second parts of the equation are positive ($Ri/R - Si/S > 0$, $si > 0$), it means that the local region is more heavily concentrated than the base region in an industry that is experiencing positive growth in the base region. Conversely, when both parts of the equation are negative ($Ri/R - Si/s < 0$ and $si < 0$), it indicates that the local region is less dependent on a declining industry than the base region. This also results in a positive Industrial Mix component.

Negative Industrial Mix components may result from a greater dependence in the local region on an industry which experiences declining employment in the base region ($Ri/R - Si/S > 0$, $si < 0$), or a lesser concentration of local region's employment in an industry experiencing a positive employment growth rate in the base region ($Ri/R - Si/S < 0$, $si > 0$). Both possibilities are undesirable from the point of view of the local region.

Although the interpretation of the sign of the Industrial Mix component is the same for both traditional and modified shift-share models, what is being measured differs substantially. Both seek to quantify a local region's concentration, in fast and slow growth industries, the modified model using base region growth rates and the difference in industry employment concentration and the traditional model using local region employment levels coupled with the difference in base region industry and overall employment growth rates.

The Local Share component $[Ri/R(ri - si)]$ in the modified model is similar to that of the traditional model. Both seek to measure the change in an industry's employment attributable to local regional characteristics. The difference between the two is that the modified model uses the percentage of total employment in a particular industry in the local region, rather than simply local region industry employment as in the traditional model.

Aggregated over all industries in a local region, the Actual Growth, Standard Growth, Industrial Mix and Local Share components represent percentages of total employment. The aggregate Actual Growth component is the percentage by which employment as a whole grew in the local region during the study period. The aggregate Standard Growth component is the equivalent measure for the base region. The aggregate Industrial Mix and Local Share components represent their overall contributions to Net Relative Change and the difference between Actual and Standard Growth.

As a result of the modifications developed by Kalbacher, the interpretation of the component results of the shift-share analysis differs from that of the traditional model. All components are expressed in percentage form, as opposed to the absolute numbers of the traditional model. It is important, however, to be careful when interpreting these percentages.

If an industry has an Actual Growth component of 2.6 percent, it does not mean that the industry grew by 2.6 percent. Rather, it means that the industry contributed 2.6 percent to the overall growth rate in the local area. The same is true for all other components. The industry component values are not a percent of total values, but rather the amount of the total percentage contributed by that industry.

REGIONAL AND STATE EMPLOYMENT GROWTH IN THE NORTHEAST

In this section, employment changes in the Northeast by industry category for the years 1970-1979 are analyzed through the use of shift-share analysis. Employment changes for the United States and the Northeast are used as benchmarks with which to compare employment changes within regional delineations of the Northeast. Initially, employment growth in the Northeast and three regions within is compared to employment growth in the United States. Then, employment growth in the three regions and states is compared to growth in the Northeast. In the next section, employment growth in metropolitan and nonmetropolitan counties is compared to growth in the Northeast.

The Northeast Relative to the United States

Employment Growth in the United States

Employment in the United States increased by 17,583,000 workers (22.4 percent) during the 1970s to a total of nearly 96 million (Table 4). Manufacturing accounted for the largest portion of employment throughout the decade, comprising over one-fifth of total U.S. employment in 1979. Its share of total employment decreased during the seventies, from 24.81 percent in 1970 to 21.99 percent in 1979, but it remained the nation's most important industrial sector.

Government accounted for 20.58 percent of all employment in 1970, the second largest industrial sector at that time. Its share fell throughout the decade, however, reaching 18.93 percent by 1979. Services, the third largest sector in 1970, expanded its share of total U.S. employment from 17.24 percent in 1970 to 19.65 percent in 1979, to become the second largest employment industry in the nation. Retail trade, which grew from 14.65 to 15.73 percent of national employment, was the fourth largest sector throughout the decade. Transportation, fifth in 1970, decreased slightly and was replaced by Wholesale Trade which grew steadly through the decade. The share of employment for five industries declined from 1970 to 1979. These industries were Farming, Durable and Nondurable Manufacturing, Transportation and Government.

Of the five most important employment sectors, only two, Services and Retail Trade, grew at a rate faster than the nation as a whole. Other industries growing faster than the national average were Agricultural Services, Mining, Construction, Finance, and Wholesale Trade. The poorest growth rate for the decade was in Farming employment, which grew at a rate of

Table 4. Employment in the United States by Industry, 1970-1979

Industry	Total Employment 1970	Total Employment 1979	Percent of Total 1970	Percent of Total 1979	Rate of Growth 1970-79
	- thousands -				- percent -
Agriculture					
Farming	1,291	1,310	1.65	1.37	1.47
Ag Services	281	505	.36	.53	79.72
Mining	627	956	.80	.99	52.47
Construction	3,557	4,545	4.55	4.74	27.77
Manufacturing					
Nondurable	8,156	8,302	10.42	8.66	1.79
Durable	11,254	12,774	14.38	13.33	13.51
Transportation	4,510	5,134	5.76	5.36	13.84
Wholesale	3,806	5,238	4.86	5.47	37.62
Retail	11,460	15,075	14.65	15.73	31.54
Finance	3,713	5,021	4.75	5.24	35.23
Services	13,490	18,828	17.24	19.65	39.57
Government	16,104	18,144	20.58	18.93	12.67
Total	78,249	95,832	100.01	100.00	22.47

1.47 percent over the 10-year period. Nondurable Goods Manufacturing had the second poorest rate. All industries, however, experienced positive overall growth for the decade.

Employment Growth in the Northeast

The Northeast's employment increased by 2,349,687 workers (9.60 percent) during the 1970s, to a total of almost 27 million (Table 5). As in the United States, Manufacturing accounted for the largest portion of this employment throughout the 1970s. Its share of total employment was 26.41 percent in 1970, declining to 22.69 percent by 1979.

Government and Services in the Northeast behaved in the same manner as in the nation. Government represented the second largest industrial sector in 1970 (19.34 percent) and Services the third (18.00 percent). By the end of the decade, Services had surpassed Government to become the second most important sector in the Northeast (21.62 percent). Retail Trade was the fourth most important sector (15.01 percent) by the end of the decade.

Agriculture was less important in the Northeast than in the nation. Both Farming and Agricultural Services combined accounted for less than 1 percent of total employment. Mining was also less important containing only .60 percent of total Northeast employment in 1979.

Six industries, Farming, Construction, Durable and Nondurable Manufacturing, Transportation and Government, decreased their shares of total employment during the seventies. Unlike in the nation, some industries actually lost employment in the Northeast during the 1970s. These were Construction, Durable and Nondurable Manufacturing, and Transportation. Most significant was Nondurable Manufacturing, which declined by 12.31 percent.

Regional Employment Growth

New England

Most employment in New England was in the Manufacturing industries (Table 6). Though Manufacturing's share declined over the decade, overall employment in the sector grew by 4.56 percent. Employment in the Services industry, the second most important industry in New England, grew at a rate of 37.78 percent for the decade. Government accounted for the third most employees in New England, despite a falling share, followed by Retail Trade.

Although employment distribution among industries did not vary substantially between the Northeast and New England, the performance of the industry categories did. The four most important industries in both regions grew at a faster rate in New England. The most notable was Manufacturing,

Table 5. Employment in the Northeast by Industry, 1970-1979

Industry	Total Employment 1970	Total Employment 1979	Percent of Total 1970	Percent of Total 1979	Rate of Growth 1970-79
					- percent -
Agriculture					
Farming	150,451	152,400	0.61	0.57	1.30
Ag Services	64,146	85,730	0.26	0.32	33.65
Mining	121,639	160,875	0.50	0.60	32.26
Construction	1,070,404	1,041,553	4.37	3.88	-2.70
Manufacturing					
Nondurable	2,937,671	2,576,087	12.00	9.60	-12.31
Durable	3,528,309	3,511,351	14.41	13.09	-0.48
Transportation	1,450,735	1,432,340	5.93	5.34	-1.27
Wholesale	1,189,609	1,391,286	4.86	5.18	16.95
Retail	3,449,889	4,027,570	14.09	15.01	16.74
Finance	1,379,968	1,596,570	5.64	5.95	15.70
Services	4,406,042	5,801,089	18.00	21.62	31.66
Government	4,735,600	5,057,289	19.34	18.85	6.79
Total	24,484,463	26,834,150	100.00	100.00	9.60

Table 6. Employment in New England by Industry, 1970-1979

Industry	Total Employment 1970	Total Employment 1979	Percent of Total 1970	Percent of Total 1979	Rate of Growth 1970-79
					percent
Agriculture					
Farming	36,377	35,200	0.74	0.63	-3.24
Ag Services	15,973	20,515	0.33	0.37	28.44
Mining	3,536	4,402	0.07	0.08	24.49
Construction	221,328	192,356	4.53	3.42	-13.09
Manufacturing					
Nondurable	575,300	516,018	11.78	9.18	-10.31
Durable	879,134	1,004,805	17.99	18.65	14.29
Transportation	225,272	236,241	4.61	4.20	4.87
Wholesale	210,345	260,775	4.31	4.64	23.97
Retail	740,520	898,599	15.16	15.99	21.35
Finance	251,221	315,409	5.14	5.61	25.55
Services	891,704	1,228,623	18.25	21.87	37.78
Government	834,820	905,658	17.09	16.12	8.49
Total	4,885,530	5,618,601	100.00	100.76	15.00

which declined in the Northeast while growing by 4.56 percent overall in New England.

Middle Atlantic

In the Middle Atlantic region, the largest share (23.81 percent) of employment was in the Manufacturing industries (Table 7). Total employment in Manufacturing declined by 11.38 percent for the decade, dropping its share of total employment by over 4 percent. As in the rest of the Northeast, Services accounted for the second largest share of total employment in the Middle Atlantic. Government was third, followed by Retail Trade and Finance. Seven of the 12 industry groupings increased their share of total employment, the largest gain occurring in Services. Of the five industry categories that decreased their share, the largest drops were in the Manufacturing industries.

Four categories showed declines in absolute employment for the decade. These were Durable and Nondurable Manufacturing, Transportation and Construction. The remaining eight showed increases.

South Middle Atlantic

Employment increased 20.25 percent during the 1970s to almost 6 million (Table 8). Government accounted for the largest portion of total employment throughout the decade, comprising 26.93 percent of all employment in the region in 1979. Services accounted for the second largest share of South Middle Atlantic employment by the end of the decade, surpassing Manufacturing. Retail Trade was the fourth most important sector after Manufacturing, with 15.03 percent of total employment by 1979.

Two industry groupings, Farming and Nondurable Goods, experienced negative rates of growth for the decade. The highest growth rates occurred in Agricultural Services, Mining, Services, Wholesale Trade, Finance, Retail Trade and Construction, respectively.

Shift-Share Analysis of the Northeast Relative to the United States

The northeastern United States, while experiencing an overall increase in employment for the decade of the seventies, fared poorly in relation to the nation as a whole. Growth during the decade was below that of the nation in every industry category, with the Northeast losing employment in four of the 12 industry groupings.

The Northeast experienced an overall Actual Growth for the decade of 9.60 percent (Table 9). The strongest industry was Services which showed an Actual Growth of 5.70 percent. Services was also the strongest sector

Table 7. Employment in the Middle Atlantic by Industry, 1970-1979

Industry	Total Employment 1970	Total Employment 1979	Percent of Total 1970	Percent of Total 1979	Rate of Growth 1970-79
					percent
Agriculture					
Farming	62,972	75,000	.42	.48	19.10
Ag Services	33,211	42,879	.22	.28	29.11
Mining	50,313	60,980	.34	.39	21.20
Construction	594,478	529,445	4.01	3.42	-10.94
Manufacturing					
Nondurable	1,899,393	1,607,287	12.81	10.38	-15.38
Durable	2,260,453	2,079,074	15.24	13.43	-8.02
Transportation	961,046	912,758	6.48	5.89	-5.02
Wholesale	804,702	889,195	5.43	5.74	10.50
Retail	2,038,702	2,267,185	13.75	14.64	11.21
Finance	928,087	1,015,146	6.26	6.56	9.38
Services	2,673,838	3,396,742	18.03	21.94	27.04
Government	2,524,725	2,607,951	17.02	16.84	3.30
Total	14,831,920	15,483,642	100.00	100.00	4.39

Table 8. Employment in the South Middle Atlantic by Industry, 1970-1979

Industry	Total Employment 1970	Total Employment 1979	Percent of Total 1970	Percent of Total 1979	Rate of Growth 1970-79
					- percent -
Agriculture					
Farming	51,102	42,200	1.07	.74	-17.42
Ag Services	14,962	22,336	.32	.39	49.28
Mining	67,790	95,709	1.42	1.67	41.18
Construction	254,598	319,752	5.34	5.58	25.59
Manufacturing					
Nondurable	462,978	452,782	9.71	7.90	-2.20
Durable	388,722	427,472	8.16	7.46	9.97
Transportation	264,417	283,341	5.55	4.94	7.16
Wholesale	174,517	241,316	3.66	4.21	38.28
Retail	670,607	861,786	14.07	15.03	28.51
Finance	200,660	266,015	4.21	4.64	32.51
Services	840,500	1,175,724	17.63	20.51	39.88
Government	1,376,055	1,543,680	28.87	26.93	12.18
Total	4,766,908	5,732,113	100.01	100.00	20.25

Table 9. Shift-Share Analysis of the Northeast Relative to the United States, 1970-1979

	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.01	0.02	-0.02	-0.02	-0.00
Ag Services	0.09	0.29	-0.20	-0.08	-0.12
Mining	0.16	0.42	-0.26	-0.16	-0.10
Construction	-0.12	1.26	-1.38	-0.05	-1.33
Manufacturing					
Nondurable	-1.48	0.19	-1.66	0.03	-1.69
Durable	-0.07	1.94	-2.01	0.00	-2.02
Transportation	-0.08	0.80	-0.87	0.02	-0.89
Wholesale	0.82	1.83	-1.01	-0.00	-1.00
Retail	2.36	4.62	-2.26	-0.18	-2.09
Finance	0.88	1.67	-0.79	0.31	-1.10
Services	5.70	6.82	-1.12	0.30	-1.42
Government	1.31	2.61	-1.29	-0.16	-1.14
Total	9.60	22.47	-12.87	0.03	-12.90

nationally, contributing 6.82 to the nation's 22.47 percent growth. Following Services were Retail Trade (2.36 percent), Government (1.31 percent), Finance (.88 percent) and Wholesale Trade (.82 percent). Nondurable Manufacturing displayed the worst performance in the Northeast, contributing -1.48 percentage points to the region's overall Actual Growth of 9.60 percent.

Overall, the nation had a growth rate of 22.47 percent for the same period, resulting in a Net Relative Change of -12.87 percent. The shift-share analysis indicates that the negative deviation in growth rates between the Northeast and the nation is found primarily in the Local Share component. Local Share accounted for -12.90 of the -12.87 percent negative Net Relative Change, indicating that overall, industries grew faster nationwide than in the Northeast. All industry categories showed a negative Local Share, indicating that they grew at a slower rate in the Northeast than in the nation. Retail Trade displayed the worst Local Share (-2.09 percent), followed by Durable Good Manufacturing and Nondurable Good Manufacturing (-2.02 and -1.69 percent, respectively).

Since all industries experienced positive growth nationally during the decade, a negative Industrial Mix component indicates a relatively lesser concentration of an industry in the Northeast than in the nation. This was the case in seven of the 12 industries. For the remaining five industries, the Industrial Mix component was positive, but small relative to the negative local share.

Within the Region

Overall, the decade of the seventies was not strong for employment growth in the Northeast. However, this region is not completely homogenous in terms of growth trends.

New England

New England (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut) fared better than the Northeast as a whole for the period, but still trailed the nation in employment growth. Actual Growth was 15.00 percent for the decade, 7.47 percentage points less than the nation's percentage increase (Table 10).

Unlike the Northeast, New England's Actual Growth did surpass the nation's Actual Growth in two industries, Durable Goods Manufacturing and Services. New England experienced a 2.57 percent Actual Growth component in Durable Good Employment compared to 1.94 percent nationally. Services showed an Actual Growth component of 6.90 percent in New England, compared to 6.82 percent nationally.

Table 10. Shift-Share Analysis of New England Relative to the United States, 1970-1979.

	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.02	0.02	-0.05	-0.01	-0.04
Ag Services	0.09	0.29	-0.19	-0.03	-0.17
Mining	0.01	0.42	-0.41	-0.38	-0.02
Construction	-0.59	1.26	-1.86	-0.00	-1.85
Manufacturing					
Nondurable	-1.21	0.19	-1.40	0.02	-1.42
Durable	2.57	1.94	0.63	0.49	0.14
Transportation	0.22	0.80	-0.57	-0.16	-0.41
Wholesale	1.03	1.83	-0.80	-0.21	-0.59
Retail	3.23	4.62	-1.39	0.16	-1.55
Finance	1.31	1.67	-0.36	0.14	-0.50
Services	6.90	6.82	0.07	0.40	-0.33
Government	1.45	2.61	-1.16	-0.44	-0.71
Total	15.00	22.47	-7.47	-0.02	-7.45

In New England, as in the Northeast as a whole, Local Share accounted for virtually all the negative Net Relative Change. New England was only favorable for the growth of Durable Manufacturing, as shown by the positive Local Share. The remaining 11 industry categories grew more in the nation than in New England.

New England had greater employment concentrations than the nation in five industry categories: Retail Trade, Finance, Services, Nondurable Manufacturing and Durable Manufacturing. As a result, these industries displayed positive Industrial Mix components and helped minimize the overall negative influence of the aggregate Industrial Mix component.

Middle Atlantic

The Middle Atlantic region (New York, New Jersey, Pennsylvania) performed the worst of the three Northeast regions, expanding its employment by only 4.39 percent for the decade (Table 11). It lost employment in the Construction, Durable and Nondurable Manufacturing and Transportation industries. The strongest Actual Growth components were in Services (4.87 percent) and Retail Trade (1.54 percent) industries. Only in Farming did the Middle Atlantic exceed the nation in Actual Growth (.08 to .02 percent).

The poorest employment growth relative to the nation was in Durable Manufacturing, with a Net Relative Change of -3.17 percent. This was followed by Retail Trade (-3.08 percent) and Nondurable Manufacturing (-2.16 percent). The Middle Atlantic's poor showing in Manufacturing is particularly notable because of the region's traditional dependence on this sector.

As in the rest of the Northeast, the Middle Atlantic's poor performance was due to the Local Share. With the exception of Farming, all industries grew more slowly in the Middle Atlantic than they did nationwide, resulting in negative Local Shares. The region had a lower concentration of employment in six industries than did the nation. This mix of industries was sufficient to yield a small positive Industrial Mix component overall.

South Middle Atlantic

The South Middle Atlantic (Delaware, Washington D.C., Maryland, Virginia and West Virginia) performed the strongest of the three northeastern regions during the decade, growing by 20.25 percent, only 2.22 percentage points less than the nation as a whole (Table 12).

Services again accounted for the largest Actual Growth (7.03 percent), followed by Retail Trade (4.01 percent), and Government (3.52 percent). The

Table 11. Shift-Share Analysis of the Middle Atlantic Region Relative to the United States, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.08	0.02	0.06	-0.02	0.07
Ag Services	0.07	0.29	-0.22	-0.11	-0.11
Mining	0.07	0.42	-0.35	-0.24	-0.11
Construction	-0.44	1.26	-1.70	-0.15	-1.55
Manufacturing					
Nondurable	-1.97	0.19	-2.16	0.04	-2.20
Durable	-1.22	1.94	-3.17	0.12	-3.28
Transportation	-0.33	0.80	-1.12	0.10	-1.22
Wholesale	0.57	1.83	-1.26	0.21	-1.47
Retail	1.54	4.62	-3.08	-0.28	-2.80
Finance	0.59	1.67	-1.08	0.53	-1.62
Services	4.87	6.82	-1.95	0.31	-2.26
Government	0.56	2.61	-2.05	-0.45	-1.60
Total	4.39	22.47	-18.08	0.06	-18.14

Table 12. Shift-Share Analysis of the South Middle Atlantic Region Relative to the United States, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.19	0.02	-0.21	-0.01	-0.20
Ag Services	0.15	0.29	-0.13	-0.04	-0.10
Mining	0.59	0.42	0.17	0.33	-0.16
Construction	1.37	1.26	0.10	0.22	-0.12
Manufacturing					
Nondurable	-0.21	0.19	-0.40	-0.01	-0.39
Durable	0.81	1.94	-1.13	-0.84	-0.29
Transportation	0.40	0.80	-0.40	-0.03	-0.37
Wholesale	1.40	1.83	-0.43	-0.45	0.02
Retail	4.01	4.62	-0.61	-0.18	-0.43
Finance	1.37	1.67	-0.30	-0.19	-0.11
Services	7.03	6.82	0.21	0.16	0.06
Government	3.52	2.61	0.91	1.05	-0.14
Total	20.25	22.47	-2.22	0.00	-2.22

least contribution was from Nondurable Manufacturing, with an Actual Growth of -.21 percent.

The South Middle Atlantic showed a positive Net Relative Change for Mining, Construction, Services and Government. The region also had a relatively higher proportion of its total employment than the nation in these industries, resulting in positive Industrial Mixes for them, which offset the negative Industrial Mixes of the other eight industries.

The South Middle Atlantic was also at a competitive disadvantage to the rest of the nation in expanding employment growth although not as much as the rest of the Northeast. Its negative Local Share (-2.22 percent) accounted for the entire deviation in percentage growth between the region and the nation.

Summary

The Northeast did not perform well relative to the United States in employment growth during the 1970s (Table 13). This is true for the region as a whole, and the New England, Middle Atlantic and South Middle Atlantic regions. Shift-share analysis indicates that the poor performance is primarily attributable to the lack of growth of industries in the Northeast relative to the nation.

Regions and States Relative to the Northeast

Analysis of the Northeast and the three regions within it highlight the heterogeneous nature of the area's economic composition. Although all three regions failed to keep pace with the nation, they exhibited different growth trends and economic compositions. The analysis in this section uses the Northeast as a base to analyze the relative growth in the three regions.

New England

Positive differences in industry rates of growth provided a strong Local Share component for New England relative to the Northeast (Table 14). The Local Share component accounted for almost all of the positive difference between growth rates in New England and the Northeast. The Industrial Mix component, though negative overall, was small.

New England's largest Actual Growth components were in Services, Retail Trade and Durable Goods Manufacturing, all of which outpaced the same industries in the Northeast. Percentage contributions to Actual Growth were higher in all New England industries except Farming, Mining, and Construction, with the largest positive difference occurring in Durable Manufacturing.

Table 13. Summary of Shift-Share Analysis of the Northeast Relative to the United States, 1970-1979

	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
New England	15.00	22.47	-7.47	-0.02	-7.45
Middle Atlantic	4.39	22.47	-18.08	0.06	-18.14
South Middle Atlantic	20.25	22.47	-2.22	0.00	-2.22
Northeast	9.60	22.47	-12.87	0.03	-12.90

Table 14. Shift-Share Analysis of New England Relative to the Northeast, 1970-1979.

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.02	0.01	-0.03	0.00	-0.03
Ag Services	0.09	0.09	0.01	0.02	-0.02
Mining	0.01	0.16	-0.15	-0.14	-0.01
Construction	-0.59	-0.12	-0.48	-0.00	-0.47
Manufacturing					
Nondurable	-1.21	-1.48	0.26	0.03	0.24
Durable	2.57	-0.07	2.64	-0.02	2.66
Transportation	0.22	-0.08	0.30	0.02	0.28
Wholesale	1.03	0.82	0.21	-0.09	0.30
Retail	3.23	2.36	0.87	0.18	0.70
Finance	1.31	0.88	0.43	-0.08	0.51
Services	6.90	5.70	1.20	0.08	1.12
Government	1.45	1.31	0.14	-0.15	0.29
Total	15.00	9.60	5.40	-0.16	5.24

New England Employment Growth by State

Shift-share analysis of the variation between growth rates in the New England states and the Northeast provides additional insight into the distribution of New England's growth. Shift-share analyses for all northeastern states are presented in Appendix A and summarized in Table 15.

In New England, only one state experienced greater employment growth than the nation's 22.47 percent for the decade. New Hampshire grew by 37.47 percent. Of the remaining five states, all but Rhode Island grew by a greater percentage (8.72 percent) than the Northeast. The three northernmost states; Maine, Vermont and New Hampshire, grew by the largest percentages.

Connecticut's Net Relative Change of 5.83 percent was due almost entirely to its positive Local Share. Its mix of industries, though unfavorable overall, did not hinder the state's performance considerably. The largest Actual Growth components for the decade were in Services and Retail Trade. Losses in employment occurred in Construction, and both divisions of Manufacturing.

Maine's Local Share component of 11.85 percent offset its negative Industrial Mix of -1.95 percent. Strong relative growth rates in Durable and Nondurable Manufacturing, Retail Trade, and Services contributed to its strong Local Share. In terms of Actual Growth, Services showed the highest value for the decade. The largest gain relative to the Northeast, however, was in Durable Manufacturing due to the strong growth of the sector in Maine compared to a decline in the Northeast for the decade. Maine experienced employment declines in Farming, Mining, and Nondurable Manufacturing.

Employment in Massachusetts grew by 12.02 percent for the decade due to both a positive Local Share and a positive Industrial Mix. Strong contributions from Durable Goods and Services helped Massachusetts outpace the Northeast in overall employment growth. Massachusetts experienced employment losses in three industry categories, Construction, Mining and Nondurable Manufacturing.

New Hampshire's impressive growth for the decade was due entirely to a strong Local Share (29.28 percent) which offset a negative Industrial Mix Component. New Hampshire experienced strong Actual Growth components in Durable Manufacturing, Retail Trade and Services, with negative components in only Farming and Nondurable Manufacturing.

Rhode Island was the only state in New England to experience greater employment loss than the Northeast as a whole. This performance was attributable to a poor mix of industries, which offset positive gains in Local Share. Rhode Island's substantial loss of employment in Government, a strong growth industry in the rest of the region, largely accounted for its poor performance. Rhode Island's largest Actual Growth components occurred in

Table 15. Summary of Shift-Share Analysis of the Northeast by Region and State Relative to the Northeast, 1970-1979

	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
New England	15.00	9.60	5.40	-0.16	5.24
Connecticut	15.43	9.60	5.83	-0.57	6.40
Maine	19.15	9.60	9.90	-1.95	11.85
Massachusetts	12.02	9.60	2.42	0.63	1.79
New Hampshire	37.47	9.60	27.87	-1.41	29.28
Rhode Island	8.72	9.60	-0.88	-1.08	0.20
Vermont	20.21	9.60	10.61	0.94	9.67
Middle Atlantic	4.39	9.60	-5.21	-0.19	-5.02
New Jersey	11.84	9.60	2.24	-1.50	3.74
New York	-0.74	9.60	-10.34	-0.89	-9.45
Pennsylvania	8.29	9.60	-1.31	-1.14	-0.17
South Middle Atlantic	20.25	9.60	10.65	0.71	9.94
Delaware	13.73	9.60	4.13	-2.46	6.59
Washington, D.C.	4.80	9.60	-4.76	4.13	-9.09
Maryland	19.83	9.60	10.23	0.78	9.45
Virginia	26.74	9.60	17.14	-0.32	17.46
West Virginia	20.40	9.60	10.80	1.35	9.45

Services, Durable Goods and Retail Trade. Employment losses occurred in Farming, Construction, Nondurable Goods, Transportation and Government.

Vermont's percentage growth of 20.21 percent was the second greatest in New England. Gains were made due to the Industrial Mix and the Local Share, with the Local Share accounting for the majority. Only four categories had negative Local Shares. Vermont lost employment in three categories, Farming, Mining and Construction. These losses were small, however, in both absolute and percentage terms. Strong contributions from Services, Durable and Nondurable Manufacturing and Retail Trade were experienced for the decade.

This analysis of the states within New England highlights several important characteristics of the region. The three northernmost states experienced the highest Actual Growth rate of the region. Services, Retail Trade and Durable Goods contributed the most to positive Actual Growth. Construction experienced the most consistent employment loss, accounting for losses in four states.

All states in the region experienced positive Local Shares, which accounted for most differences in employment growth in the states as well as the region as a whole. This indicates that although growth may not have been evenly distributed throughout the region, New England contained characteristics favorable to growth, giving it a competitive advantage.

Middle Atlantic

Employment distribution among industry groups is similar in the Middle Atlantic Region and the Northeast. The performance of these industries, however, accounts for the Middle Atlantic's poor relative growth record (Table 16). The Northeast experienced higher Actual Growth components for the decade in every industry category except Farming, which accounted for less than 1 percent of total employment. This difference is a result of the weak Local Share component of the Mid-Atlantic region relative to the Northeast. The mix of industry concentrations, though not substantially different, still accounts for a negative Industrial Mix of -.19 percent.

Middle Atlantic Employment Growth by State

Employment in the Middle Atlantic states grew less than employment in the nation as a whole during the 1970s. Only New Jersey's growth, 11.84 percent, was greater than that of the Northeast. The remaining two states, New York and Pennsylvania, failed to keep pace with the Northeast. New York was the only state in the Northeast to experience an overall loss of employment for the decade. The results of the shift-share analyses for the states are summarized in Table 15.

New Jersey outpaced northeastern employment growth by 2.24 percentage points. This positive Net Relative Change was due to of the Local Share. The largest Local Shares were in Government and Wholesale Trade. A negative

Table 16. Shift-Share Analysis of the Middle Atlantic Region Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.08	0.01	0.07	-0.00	0.06
Ag Services	0.07	0.09	-0.02	-0.01	-0.01
Mining	0.07	0.16	-0.09	-0.05	-0.04
Construction	-0.44	-0.12	-0.32	0.01	-0.33
Manufacturing					
Nondurable	-1.97	-1.48	-0.49	-0.10	-0.39
Durable	-1.22	-0.07	-1.15	-0.00	-1.15
Transportation	-0.33	-0.06	-0.25	-0.01	-0.24
Wholesale	0.57	0.82	-0.25	0.10	-0.35
Retail	1.54	2.36	-0.82	-0.06	-0.76
Finance	0.59	0.88	-0.30	0.10	-0.40
Services	4.87	5.70	-0.82	0.01	-0.83
Government	0.56	1.31	-0.75	-0.16	-0.60
Total	4.39	9.60	-5.21	-0.19	-5.02

Industrial Mix component was the result of negative components in nine of the 12 industry groupings. New Jersey lost employment in Farming, Mining, Construction and both Manufacturing categories. The largest Actual Growth components were in Services, Retail Trade, Government, and Wholesale Trade.

New York was the only state to lose employment during the decade, with declines in seven of the 12 industry categories. Only Services had an Actual Growth component of over 1 percent. Losses relative to the Northeast occurred in every category except Farming. New York's poor relative performance was due mostly to a large negative Local Share. The Industrial Mix component was also slightly negative.

Employment in Pennsylvania also increased less than in the Northeast as a whole. This negative Net Relative Change was due mostly to a negative Industrial Mix. Both Durable and Nondurable Manufacturing lost employment for the decade. Services and Retail Trade showed the largest Actual Growth components in Pennsylvania. Retail Trade and Transportation displayed the largest positive Net Relative Change. The Manufacturing industries showed the largest negative Net Relative Change.

Shift-share analysis of the states in the Middle Atlantic region highlights a poor performance. Although New Jersey's rate of employment grew by more than that of the Northeast, New York and Pennsylvania fared poorly. New York, the only state to experience a loss of employment for the decade, contains almost half the region's total employment. Its losses, therefore, greatly affected the performance of the region. Services and Retail Trade were again the strongest contributors to employment growth, both in the states and the region. The three states in the Middle Atlantic all displayed different magnitudes and signs in their Industrial Mix and Local Share components.

South Middle Atlantic

The South Middle Atlantic fared the best of the three regions in the Northeast (Table 17). A favorable Local Share plus a positive mix of industries caused the region's strong growth. The South Middle Atlantic's Local Share was positive in every industry category but Farming. Farming and Nondurable Manufacturing were the only industries to lose employment during the decade. The strongest sectors were Services, Retail Trade and Government, all of which showed a larger Actual Growth component in the South Middle Atlantic than in the Northeast.

Table 17. Shift-Share Analysis of the South Middle Atlantic Region Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.19	0.01	-0.20	0.01	-0.20
Ag Services	0.16	0.09	0.07	0.02	0.05
Mining	0.59	0.16	0.43	0.30	0.13
Construction	1.37	-0.12	1.48	-0.03	1.51
Manufacturing					
Nondurable	-0.21	-1.48	1.26	0.28	0.98
Durable	0.81	-0.07	0.88	0.03	0.85
Transportation	0.40	-0.08	0.47	0.01	0.47
Wholesale	1.40	0.82	0.58	-0.20	0.78
Retail	4.01	2.36	1.65	-0.00	1.65
Finance	1.37	0.88	0.49	-0.22	0.71
Services	7.03	5.70	1.33	-0.12	1.45
Government	3.52	1.31	2.20	0.65	1.56
Total	20.25	9.60	10.65	0.71	9.94

South Middle Atlantic Employment Growth by State

With the exception of Washington, D.C., employment in all states in the South Middle Atlantic grew by a greater overall percentage than employment in the Northeast during the 1970s. In Virginia, the percentage was higher than in the nation. Delaware, Maryland, Virginia and West Virginia all had positive Local Shares for the decade (Table 15).

Delaware's Net Relative Change of 4.13 percent was due largely to local characteristics. Its Industrial Mix, negative in seven of the 12 industrial groupings, hindered the state's growth. The strongest Local Shares was in Nondurable Manufacturing. The largest Actual Growth components were in Services and Retail Trade.

Percentage employment growth in Washington, D.C. was well below that of the Northeast during the 1970s. Actual Growth was 4.80 percent, resulting in a Net Relative Change of -4.76 percent. This poor relative performance was due to a strong negative Local Share, which counteracted a favorable Industrial Mix. The Local Share component was negative in all industrial categories except Government. Retail Trade, Services and Wholesale Trade showed the largest negative Local Shares. Washington, D.C.'s heavy concentrations in Services and Government helped offset losses due to local disadvantages. Only four industry categories expanded during the decade, with Services and Government accounting for virtually all the employment growth in the area.

Employment in Maryland grew by 19.83 percent for the decade, 10.23 percentage points higher than the Northeast. The Local Share accounted for most of the Net Relative Change. Negative Local Shares occurred in Agricultural Services, Mining, and both Manufacturing industries. The largest positive Local Shares were in Services, Government and Retail Trade. Maryland had greater Actual Growth components than the Northeast in all industry groupings except Mining and Durable Goods. The largest Actual Growth components were in Services, Retail Trade and Government. Employment losses occurred in Mining and both Manufacturing industries.

Virginia's employment growth of 26.74 percent was due primarily to its strong Local Share which was positive in every industry category except Farming. The largest Local Shares were in Retail Trade, Services, Durable Goods Manufacturing and Construction. Virginia's Industrial Mix was negative in five of the 12 industries and slightly negative overall. The actual growth of Virginia's industries exceeded that of the Northeast for every industry but farming. As in the rest of the region, Actual Growth was greatest in Services, Retail Trade and Government.

West Virginia's strong Local Share, combined with a substantially beneficial mix of industries, yielded strong growth for the decade. The distribution of this growth among industries, however, followed a somewhat

different pattern than in the rest of the Northeast. Retail Trade had the largest Actual Growth component of any industry in West Virginia, followed by Services, Government and Mining. The state's concentration on Mining employment yielded an Industrial Mix component of 2.73 for the industry which strongly influenced the state's overall Industrial Mix. Local Share components were highest in Government and Retail Trade. Farming and Nondurable Manufacturing were the only industries to lose employment during the seventies.

The South Middle Atlantic fared the best of the three northeastern regions during the 1970s. Each state, but not Washington, D.C., displayed overall growth greater than the Northeast. Services was again the strongest growth industry, followed by Retail Trade and Government. Construction showed the biggest difference from other regions, growing slightly, while declining in New England and the Middle Atlantic as well as the Northeast as a whole. The South Middle Atlantic also displayed the only positive Industrial Mix component of the three northeastern regions.

Summary

Diverging trends among the three regions of the Northeast highlight their heterogeneity. Of the three, the South Middle Atlantic showed the best employment growth during the 1970s. However, even it failed to keep pace with national employment growth. The Middle Atlantic had the worst growth employment rate of the three regions, failing to keep pace even with the Northeast as a whole.

Among the 13 states and the District of Columbia in the Northeast, only New Hampshire and Virginia had Actual Growth rates greater than the rate of the United States as a whole. Of the remainder, only Rhode Island, New York, and Washington D.C. had a smaller growth percentage than the Northeast. New York was the only state to experience an overall loss of employment.

Local Share was positive in the majority of states, indicating beneficial local characteristics relative to the Northeast as a whole. New York, Pennsylvania, and Washington D.C. were the only exceptions. Industrial Mix was negative in most states.

ANALYSIS OF METROPOLITAN AND NONMETROPOLITAN EMPLOYMENT GROWTH IN THE NORTHEAST

The counties of the Northeast were classified as either metropolitan or nonmetropolitan, using the definitions established by Hines, Brown and Zimmer. Although some county classifications have changed during the decade, 1970 classifications were used to achieve a consistent base of counties within which to analyze employment changes. County level BEA employment data are used for the analyses in this section.

Metropolitan Counties

Employment in northeastern metropolitan counties increased by 1,712,993 workers (8.1 percent) during the 1970s, numbering nearly 23 million (Table 18). Services accounted for the largest portion, comprising over one-fifth of total employment in 1979. Manufacturing was second with 22.23 percent.

Government accounted for 18.94 percent of all employment in 1970. As the third largest sector, its share fell slightly during the decade. Retail Trade expanded its share of total employment from 14.13 percent in 1970 to 14.94 percent in 1979 to become the fourth largest employment industry in the northeastern metropolitan counties. Durable Goods was the fourth largest sector by the end of the decade (12.91).

Four industries had negative growth rates for the decade, Construction, Nondurable Manufacturing, Durable Manufacturing and Transportation. Five industries had overall growth rates exceeding those of the Northeast as a whole: Agricultural Services, Wholesale Trade, Retail Trade, Finance, and Services.

The shift-share analysis for the 163 metropolitan counties in the Northeast is presented in Table 19. The overall growth rate for metropolitan counties was 8.10 percent for the decade. This rate was less than the Northeast's rate, resulting in a negative Net Relative Change. This deficit resulted from a negative Local Share component which was only partially offset by a positive Industrial Mix.

The categories with the largest positive Industrial Mix effects were Services and Finance. Categories with the largest negative Industrial Mix components were Mining and Government. The only positive Local Share component for metropolitan counties was in Farming. Durable and Nondurable

Table 18. Metropolitan County Employment in the Northeast by Industry 1970-1979

Industry	Total Employment 1970	Total Employment 1979	Percent of Total 1970	Percent of Total 1979	Rate of Growth 1979
					- percent -
Agriculture					
Farming	70,682	76,920	0.33	0.34	8.83
Ag Services	50,485	62,454	0.24	0.27	23.71
Mining	43,936	47,157	0.21	0.21	7.33
Construction	910,733	860,123	4.31	3.76	-5.56
Manufacturing					
Nondurable	2,453,607	2,110,087	11.61	9.23	-14.00
Durable	3,040,871	2,949,411	14.39	12.91	-3.01
Transportation	1,287,660	1,255,751	6.09	5.50	-2.48
Wholesale	1,102,457	1,261,833	5.22	5.52	14.46
Retail	2,987,260	3,413,209	14.13	14.94	14.26
Finance	1,291,341	1,476,390	6.11	6.46	14.33
Services	3,894,356	5,094,020	18.42	22.29	30.81
Government	4,003,831	4,242,752	18.94	18.57	5.97
Total	21,137,282	22,850,275	100.00	100.00	8.10

Table 19. Shift-Share Analysis of Northeastern Metropolitan Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.03	0.01	0.02	-0.01	0.02
Ag Services	0.06	0.09	-0.04	-0.01	-0.03
Mining	0.02	0.12	-0.10	-0.07	-0.03
Construction	-0.24	-0.10	-0.14	0.00	-0.15
Manufacturing					
Nondurable	-1.63	-1.51	-0.11	0.05	-0.16
Durable	-0.43	-0.06	-0.37	0.00	-0.37
Transportation	-0.15	-0.08	-0.08	-0.00	-0.07
Wholesale	0.75	0.86	-0.11	0.07	-0.17
Retail	2.02	2.36	-0.34	0.01	-0.35
Finance	0.88	0.89	-0.02	0.08	-0.09
Services	5.68	5.69	-0.01	0.12	-0.14
Government	1.13	1.31	-0.18	-0.03	-0.16
Total	8.10	9.60	-1.50	0.21	-1.71

Manufacturing, Retail Trade and Wholesale Trade, Construction, Government and Services accounted for most of the -1.71 percent Local Share component.

Four industry groupings had declining absolute employment in metropolitan counties during the decade. The Manufacturing industries accounted for most of this loss in both absolute and percentage terms. The largest Actual Growth components in metropolitan counties in the Northeast were in Services and Retail Trade. Only Farming exhibited an Actual Growth component in Northeast metropolitan counties in excess of its Northeastern counterpart.

Nonmetropolitan Counties

Nonmetropolitan counties in the Northeast increased their employment by 19.09 percent or 639,068 employees during the decade of the seventies (Table 20). Manufacturing, despite a falling share, represented the largest employment sector, accounting for 25.61 percent of all employees in 1979. Government was the second largest industry.

Services was the third most important sector in terms of employment throughout the decade, increasing its share from 15.56 percent in 1970 to 17.91 percent in 1979. Retail trade increased its share to 15.41 percent by 1979, making it the fourth largest employing industry. Agricultural Services, Farming, and Mining again accounted for the least employment.

Only Farming and Nondurable Manufacturing lost employment over the decade, with growth rates of -4.05 percent and -5.46 percent, respectively. The greatest rate of growth occurred in Agricultural Services, followed by Wholesale Trade. Four other industries grew at rates greater than the national average: Finance, Services, Mining and Retail Trade.

The shift-share analysis for the 273 nonmetropolitan counties in the Northeast is presented in Table 21. The overall growth rate was 19.09 percent, less than that of the nation but substantially more than that of the Northeast as a whole. The resulting Net Relative Change of 9.49 percent was due entirely to the Local Share component, which was only partially offset by a negative Industrial Mix effect.

The largest negative Industrial Mix components occurred in Services, Finance and Wholesale Trade. Modest gains were made in Mining and Government, where nonmetropolitan counties displayed greater employment concentrations than the Northeast. The large positive Local Share component was due to higher growth rates in all industries but Farming. The largest contributors to the Local Share component were in Durable Manufacturing and Retail Trade.

Table 20. Nonmetropolitan County Employment in the Northeast by Industry 1970-1979

Industry	Total Employment 1970	Total Employment 1979	Percent of Total 1970	Percent of Total 1979	Rate of Growth 1979
					- percent -
Agriculture					
Farming	78,675	75,492	2.35	1.89	-4.05
Ag Services	12,216	23,163	0.36	0.58	89.61
Mining	80,056	106,752	2.39	2.68	33.35
Construction	153,266	180,595	4.58	4.53	17.83
Manufacturing					
Nondurable	483,753	457,319	14.45	11.47	-5.46
Durable	487,563	563,901	14.56	14.14	15.66
Transportation	163,085	176,493	4.87	4.43	8.22
Wholesale	84,864	136,881	2.53	3.43	61.29
Retail	462,699	614,304	13.82	15.41	32.77
Finance	88,252	122,242	2.64	3.07	38.51
Services	520,946	714,010	15.56	17.91	37.06
Government	731,750	814,524	21.86	20.43	11.31
Total	3,347,706	3,986,774	100.00	100.00	19.09

Table 21. Shift-Share Analysis of Northeast Nonmetropolitan Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.10	0.01	-0.11	0.04	-0.14
Ag Services	0.33	0.09	0.23	0.04	0.19
Mining	0.80	0.12	0.68	0.45	0.22
Construction	0.82	-0.10	0.91	-0.01	0.92
Manufacturing					
Nondurable	-0.79	-1.51	0.72	-0.31	1.03
Durable	2.28	-0.06	2.34	-0.00	2.34
Transportation	0.40	-0.08	0.48	0.01	0.46
Wholesale	1.55	0.86	0.69	-0.41	1.10
Retail	4.53	2.36	2.17	-0.05	2.21
Finance	1.02	0.89	0.12	-0.48	0.60
Services	5.77	5.69	0.08	-0.78	0.86
Government	2.47	1.31	1.16	0.17	0.99
Total	19.09	9.60	9.49	-1.31	10.80

Only two categories had negative employment changes for the decade, Nondurable Manufacturing and Farming. The largest Actual Growth components occurred in Services, Retail Trade, Government and Durable Good Manufacturing. Every industry category except Farming experienced greater Actual Growth components in nonmetropolitan counties than in the Northeast as a whole.

Analyses of metropolitan and nonmetropolitan counties in the Northeast show almost opposite growth trends. Metropolitan counties derived their growth impetus from a favorable mix of industries, experiencing negative Industrial Mix components only in the five categories in which nonmetropolitan counties showed positive effects. Nonmetropolitan counties, growing as a result of beneficial local characteristics, had negative Local Share effects in the only industry, Farming, in which metropolitan counties experienced a positive Local Share.

Metropolitan and Nonmetropolitan Counties by County Type

Shift-share analyses of metropolitan and nonmetropolitan counties in the Northeast point out very different growth trends for the decade. Results of shift-share analyses for individual county types are presented in Appendix B and summarized in Table 22.

Metropolitan Counties

With the exception of Greater Metropolitan Core counties, all county types displayed more growth than the Northeast. In Greater Metropolitan Core counties, overall employment declined for the decade. The greatest growth percentage was in Totally Rural Nonadjacent counties, followed by Greater Metropolitan Suburban and Totally Rural Adjacent. The three county types with the lowest growth were metropolitan type counties.

In Greater Metropolitan Core counties, the poor growth of -4.09 percent for the decade was attributable to a large negative Local Share, which was only partially offset by a positive Industrial Mix. The largest negative Local Share components were in Services and Retail Trade. Only Farming grew by a greater percentage in Greater Metropolitan Core counties than in the Northeast. These counties lost employment in seven of the 12 industrial categories, with the largest Negative Actual Growth Component occurring in Nondurable Manufacturing employment. The largest positive Actual Growth contribution was in Services.

The strong growth in Greater Metropolitan Suburban counties was due primarily to a strong Local Share, combined with a small positive Industrial Mix. The biggest contributor to Local Share was Services. Greater Metropolitan Suburban counties experienced positive employment growth in all industries. The largest Absolute Growth contributors were in Services and Retail Trade.

Table 22. Summary of Shift-Share Analysis of Metropolitan and Nonmetropolitan Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Metropolitan	8.10	9.60	-1.50	0.21	-1.71
Greater Metropolitan Core	-4.09	9.60	-13.69	1.38	-15.07
Greater Metropolitan Suburban	25.70	9.60	16.10	0.40	15.70
Medium Metropolitan	14.33	9.60	4.73	-1.55	6.28
Small Metropolitan	15.80	9.60	6.20	-1.54	7.74
Nonmetropolitan	19.09	9.60	9.49	-1.31	10.80
Urbanized Adjacent	16.37	9.60	6.77	-1.85	8.62
Urbanized Nonadjacent	22.10	9.60	12.50	0.03	12.47
Less Urbanized Adjacent	18.38	9.60	8.78	-1.25	10.03
Less Urbanized Nonadjacent	21.41	9.60	11.81	-1.06	12.87
Totally Rural Adjacent	21.27	9.60	11.67	-2.11	13.78
Totally Rural Nonadjacent	28.53	9.60	18.93	0.16	18.77

The 4.73 percent Net Relative Change in Medium Metropolitan counties was due primarily to its Local Share component, which was partially offset by a negative Industrial Mix. All industry categories displayed negative Industrial Mix components except Transportation, Agricultural Services and Government. Positive Local Shares in every industry except Mining and Agricultural Services more than offset losses due to a poor mix of industries. Employment losses occurred in Mining and Nondurable Manufacturing. The largest Actual Growth components were in Services and Retail Trade.

Employment in Small Metropolitan counties grew by 15.80 percent for a Net Relative Change of 6.20 percent. This was due to the Local Share effect, which was partially offset by a negative Industrial Mix. The largest Actual Growth components were in Services and Retail Trade. Transportation, Retail Trade, Mining and Farming were the only industries with positive Industrial Mix Components. The largest gain due to Local Share was in Durable Goods.

Nonmetropolitan Counties

Urbanized Adjacent counties in the Northeast grew largely because of favorable local characteristics. Every industry exhibited a positive Local Share component, the largest contributors being Retail Trade and Durable Manufacturing. Gains due to Local Share were partially offset by an unfavorable mix of industries. All industries had larger Actual Growth components in these counties than in the Northeast, with the exception of Nondurable Manufacturing. Services and Retail Trade were the largest contributors to Actual Growth.

Urbanized Nonadjacent counties grew in the Northeast in all but two industry groupings. Only Farming and Services had smaller Actual Growth components. The Net Relative Gain was due to the Local Share, aided slightly by a small positive Industrial Mix. Farming and Nondurable Goods declined in these counties during the decade. The strong Local Share was due primarily to gains in Government and Retail Trade.

Less Urbanized Adjacent counties experienced a positive Net Relative change of 8.78 percent due to a strong Local Share component. Gains in Local Share occurred in every industry but Government. The Industrial Mix component was negative, the largest losses coming in Services, Finance and Wholesale Trade. Only Government experienced a negative Net Relative change relative to the Northeast, with Durable and Nondurable Manufacturing, Construction, and Retail Trade showing the largest net relative gains. All industries except Nondurable Goods gained employment for the decade.

Farming was the only category that lost employment in Less Urbanized Nonadjacent counties for the decade. The remaining industry groups, most notably Services, Retail Trade, and Durable Manufacturing, combined for an overall employment growth of 21.41 percent. Negative Local Shares in Farming and Services did not offset the overwhelmingly positive Local Share. The mix of industries was unfavorable overall, but only slightly. A large positive

Industrial Mix in Mining helped to partially offset losses due to unfavorable industry concentrations.

Totally Rural Adjacent counties grew by 21.27 percent for a Net Relative change of 11.67 percent, due entirely to a strong Local Share, partially diminished by a negative Industrial Mix. Gains in Local Share were strong throughout, with negative components evident only in Farming and Services. Industrial Mix components for over half the industry categories were positive, but negative overall.

These counties gained employment in every category but Farming, with a negative Net Relative change occurring in Farming as well as in Finance and Services. Despite losses relative to the Northeast, Services contributed the most to Actual Growth, followed by Retail Trade, Mining and Durable Manufacturing.

Totally Rural Nonadjacent counties exhibited very strong growth during the seventies, growing by a greater percentage than the nation. This was due overwhelmingly to Local Share, which was negative for Farming and Agricultural Services. With the exception of Nondurable Manufacturing, however, all other industries had Local Shares of over 1 percent. Durable Manufacturing grew very well, exhibiting a Local Share component of 5.97 percent. The Industrial Mix component was slightly positive overall, due primarily to the employment concentrations in Mining. Losses in employment occurred in Farming and Nondurable Manufacturing. Exceptionally strong Actual Growth components were evident in other industries, most notably Durable Manufacturing, Mining, and Construction.

Summary

Analysis of the Northeast by county type provides insights into the relative growth of metropolitan and nonmetropolitan counties. All county types with the exception of Greater Metropolitan Core counties, the most metropolitan county type, grew by a greater percentage than the Northeast as a whole (Table 22). Two county types, Greater Metropolitan Suburban and Totally Rural Nonadjacent, outpaced the nation in percentage of employment growth. Because of the great concentration of total metropolitan employment located in Greater Metropolitan Core counties, the poor performance of these counties hindered the growth of metropolitan counties overall.

Growth in nonmetropolitan counties was more evenly distributed, with greater growth occurring in the more rural types. Local Share was positive in all county types except Greater Metropolitan Core counties, where it was overwhelmingly negative. The Industrial Mix, however, was strongly positive in this county type, but either negative or inconsequential in the other county types.

SUMMARY AND CONCLUSIONS

This study was undertaken to examine spatial and structural trends in employment in the northeastern United States during the seventies. Shift-share analyses for the years 1970-1979 were conducted for the Northeast, for three individual northeastern regions, states, metropolitan and nonmetropolitan counties, and for 10 county types relative to the Northeast.

Conclusions

The major conclusions of this study are:

(1) The Northeast region as a whole had a slower employment growth rate than the United States during the 1970s. Services is becoming the Northeast's most important employment sector, but Manufacturing continues to account for the highest proportion of total employment.

(2) The fastest growing sectors nationally were Agricultural Services, Mining, Services, Wholesale Trade, Finance and Retail Trade, all of which grew faster than the nation as a whole. In the Northeast, only Agricultural Services, Mining and Services grew by a greater percentage than the nation as a whole.

(3) The three regions comprising the Northeast also failed to keep pace with national employment growth. However, New England and the South Middle Atlantic outpaced the Northeast as a whole. The northeastern states exhibited a wide range of growth rates.

(4) In terms of industry contribution to employment growth, Services contributed most, with few exceptions, throughout the northeastern states and counties. Nondurable Manufacturing accounted for the greatest losses in most states and county types.

(5) Nonmetropolitan counties far outpaced metropolitan counties and the Northeast in percentage of employment growth. The more rural counties fared the best of all nonmetropolitan county types. Metropolitan counties as a whole grew less than the Northeast due

to the employment decline in Greater Metropolitan Core counties. The remaining metropolitan county types performed better than the Northeast.

The results of the analyses presented here point out the heterogeneous nature of the Northeast as an economic region. Employment growth rates ranged from above the national rate to an actual decline. It is important to point out that these results must be interpreted with some caution, for several reasons. First, the analysis was done on a very aggregated industrial level. For example, there are obviously industries within Manufacturing that are growing at rates different from those presented. Second, shift-share analysis is based on comparisons of growth rates and industrial concentrations only; no causal relationships are identified. Finally, there is no guarantee that the trends discussed will continue into the next decade. However, such a continuation would greatly affect the industrial and geographic structure of economic activity in the Northeast.

BIBLIOGRAPHY

Beale, Calvin L. "A Further Look at Nonmetropolitan Population Growth Since 1970." American Journal of Agricultural Economics, December 1976.

Beale, Calvin L. Rural and Small Town Population Change, 1970-80, U.S. Department of Agriculture, Economic and Statistic Service, ESS-5, February 1981.

Beale, Calvin L. "The Recent Shift of United States Population to Nonmetropolitan Areas, 1970-1975." International Regional Science Review, Vol. 2, No. 2, 1977.

Blueson, Herman. Economic Growth of the South: Past Trends and Future Prospects. Draft, December 1981.

Curtis, Wayne. An Analysis of Income and Employment Changes in Four Rural Counties in Alabama, 1960-69. Agricultural Experiment Station Bulletin 417, Auburn University, 1971.

Dawson, John A. Shift-Share Analysis: A Bibliographic Review of Technique and Applications. Vance Bibliographies Public Administration Series: Bibliography No. P 949.

Debertin, D. L. and John M. Huie. Economic Growth and Development in Rural Communities: 1960-1970. Dept. of Agricultural Economics, Purdue University, Bulletin 31, February 1974.

Dorf, R. and M. Emerson. "Determinants of Manufacturing Plant Location for Nonmetropolitan Communities in the West North Central Region of the U.S." Journal of Regional Science, Vol. 18, No. 1, 1978.

Dunn, Jr., E. S. "A Statistical and Analytical Technique for Regional Analysis." Papers and Proceedings of the Regional Science Association, 6, 97-112, 1960.

Esteban-Marquillas, J. M. "A Reinterpretation of Shift-Share Analysis." Regional and Urban Economics, 2(3), 249-261, 1972.

Fothergill, S. and G. Gudgin. "In Defense of Shift-Share." Urban Studies, 16(2), 309-19, 1979.

Fuller, Theodore E. The Northeast: Two Decades of Slow Employment Growth. Draft, 1981.

Goode, Frank M. and J. Dean Jansma. Planning for Rural Development: Indicators of Needs and Potentials in Pennsylvania. Pennsylvania State University, University Park, PA, April 1975.

Hastings, Steven E. "Delaware's Rural Economy Reflects National Trends." Economic Exchange, College of Business and Economics, University of Delaware, pg. 2-3, Fall 1980.

Hastings, Steven E. and Frank M. Goode. The Standard Industrial Classification of Establishments, 1957-1977. Agricultural Experiment Station Bulletin 432, University of Delaware, April 1980.

Hellman, D. "Shift-Share Models as Predictive Tools." Growth and Change, 7(3), 3-8, 1976.

Hines, Fred K., David L. Brown and John M. Zimmer. Social and Economic Characteristics of the Population in Metro and Nonmetro Counties, 1970. Agricultural Economic Report No. 272, U. S. Department of Agriculture, Washington, D.C., 1975.

Houston, D. B. "The Shift-Share Analysis of Regional Growth: A Critique." Southern Economic Journal, 33, 577-81, 1967.

Isard, Walter. Methods of Regional Analysis: An Introduction to Regional Science, John Wiley and Sons, Inc., New York, 1960.

Kalbacher, Judith Z. "Shift-Share Analysis: A Modified Approach." Agricultural Economics Research, Vol. 31, No. 1, 1979.

Kennard, Charles E. and Dennis K. Smith. A Base Book for Rural Development. University of Delaware, Agricultural Experiment Station Bulletin 407, December 1973.

Kuehn, John A. and Curtis Braschler. New Manufacturing Plants in the Nonmetro Ozarks Region. Agricultural Economic Report No. 384. Economic Research Service, U.S. Department of Agriculture with the University of Missouri Agricultural Experiment Station, September 1977.

Lindsay, Bruce E. annd Susan E. Martin. "An Application of the Bishop-Simpson Method: A Shift-Share Variant." Journal of the Northeastern Agricultural Economic Council. Vol. III, April 1978.

McCarthy, Kevin F. and Peter A. Morrison. "The Changing Demographic and Economic Structure of Nonmetropolitan Areas in the United States." International Regional Science Review, Vol. 2, No. 2, 1977.

Miller, Edward. "Employment Projections Within A Shift-Share Framework." The Review of Regional Studies, Vol. 4, No. 3, Winter 1974.

Northeast Regional Center for Rural Development. Priorities in Economic Development Research for the Northeast: A Report of the Ad Hoc Committee on Economic Development. Cornell University, Ithaca, New York, April 1977.

Northeast Regional Research Outline. Factors Affecting Employment Change in Rural Communities, January 1979.

Paraskevopoulos, C. C. "Patterns of Regional Economic Growth." Regional and Urban Economics, 4(1), 77-105, 1974.

Petrulis, M. F. Growth Patterns in Nonmetro-Metro Manufacturing Employment. Rural Development Research Report No. 7, January 1979.

Petrulis, M. F. Regional Manufacturing Employment Growth Patterns. Rural Development Research Report No. 13, June 1979.

Pinkovitz, William H., Glen C. Pulver and Stephen M. Smith. Nonmanufacturing Industry Potential in Rural Areas: An Analysis of Five Industries.

Research Bulletin R3007, University of Wisconsin-Madison, April 1979.

Pulver, Glen C., Stephen M. Smith and William H. Pinkovitz. "Nonmanufacturing Industry in Rural Areas." Economic Issues, Department of Agricultural Economics, University of Wisconsin-Madison, No. 49, September 1980.

Smith, Eldon D., Brady J. Deaton and David R. Kelch. "Location Determinants of Manufacturing Industries in Rural Areas." Southern Journal of Agricultural Economics, July 1978.

Szadek, Stephen A. and Dennis K. Smith. Rural Economic Development Conditions in the Delmarva Peninsula. University of Delaware, Newark, DE, September 1973.

U.S. Department of Commerce, Bureau of Economic Analysis. Local Area Personal Income, 1974-79. U.S. Government Printing Office: Washington, DC, June 1981.

Zimmerman, R. "A Variant of the Shift and Share Projection Formulation." Journal of Regional Science, 15(1), 29-38, 1975.

APPENDIX A

SHIFT-SHARE ANALYSES FOR STATES IN THE NORTHEAST

Table 1. Shift-Share Analysis of Connecticut Relative to the Northeast, 1970-1979

	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.14	0.01	0.13	-0.00	0.13
Ag Services	0.09	0.09	0.00	0.01	-0.01
Mining	0.07	0.16	-0.09	-0.14	0.05
Construction	-0.63	-0.12	-0.52	-0.01	-0.51
Manufacturing					
Nondurable	-0.28	-1.48	1.20	0.46	0.74
Durable	-0.36	-0.07	-0.29	-0.06	-0.23
Transportation	0.53	-0.08	0.60	0.02	0.58
Wholesale	1.79	0.82	0.96	-0.15	1.12
Retail	3.49	2.36	1.13	0.02	1.11
Finance	2.15	0.88	1.27	0.03	1.24
Services	6.46	5.70	0.76	-0.40	1.16
Government	2.00	1.31	0.68	-0.35	1.03
Total	15.43	9.60	5.83	-0.57	6.40

Table 2. Shift-Share Analysis of Maine Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.34	0.01	-0.35	0.03	-0.38
Ag Services	0.16	0.09	0.07	0.04	0.03
Mining	-0.00	0.16	-0.16	-0.14	-0.02
Construction	0.31	-0.12	0.43	-0.01	0.44
Manufacturing					
Nondurable	-1.21	-1.48	0.27	-1.00	1.27
Durable	2.42	-0.07	2.49	0.03	2.47
Transportation	0.30	-0.08	0.38	0.02	0.36
Wholesale	1.26	0.82	0.43	-0.19	0.62
Retail	4.78	2.36	2.42	-0.06	2.48
Finance	0.94	0.88	0.06	-0.34	0.40
Services	7.54	5.70	1.85	-0.88	2.73
Government	2.99	1.31	1.68	0.21	1.47
Total	19.15	9.60	9.90	-1.95	11.85

Table 3. Shift-Share Analysis of Massachusetts Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.00	0.01	-0.01	-0.00	-0.00
Ag Services	0.06	0.09	-0.02	0.03	-0.06
Mining	-0.00	0.16	-0.16	-0.15	-0.02
Construction	-1.08	-0.12	-0.97	0.00	-0.97
Manufacturing					
Nondurable	-1.87	-1.48	-0.39	-0.00	-0.39
Durable	2.83	-0.07	2.90	-0.00	2.90
Transportation	0.13	-0.08	0.21	0.01	0.20
Wholesale	0.49	0.82	-0.33	0.01	-0.34
Retail	2.26	2.36	-0.10	0.35	-0.45
Finance	0.82	0.88	-0.07	-0.03	-0.04
Services	6.84	5.70	1.14	0.61	0.52
Government	1.55	1.31	0.23	-0.20	0.43
Total	12.02	9.60	2.42	0.63	1.79

Table 4. Shift-Share Analysis of New Hampshire Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.28	0.01	-0.29	0.01	-0.29
Ag Services	0.16	0.09	0.08	-0.01	0.08
Mining	0.02	0.16	-0.14	-0.12	-0.02
Construction	2.39	-0.12	2.51	-0.01	2.52
Manufacturing					
Nondurable	-0.66	-1.48	0.81	-0.53	1.34
Durable	9.17	-0.07	9.23	-0.01	9.24
Transportation	0.57	-0.08	0.65	0.02	0.62
Wholesale	2.18	0.82	1.35	-0.32	1.67
Retail	8.68	2.36	6.32	0.19	6.13
Finance	2.60	0.88	1.72	-0.26	1.98
Services	8.64	5.70	2.94	-0.35	3.29
Government	4.00	1.31	2.69	-0.03	2.72
Total	37.47	9.60	27.87	-1.41	29.28

Table 5. Shift-Share Analysis of Rhode Island Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.01	0.01	-0.02	-0.01	-0.01
Ag Services	0.08	0.09	-0.01	0.02	-0.02
Mining	0.03	0.16	-0.13	-0.15	0.02
Construction	-0.27	-0.12	-0.15	0.01	-0.16
Manufacturing					
Nondurable	-1.40	-1.48	0.07	-0.01	0.08
Durable	4.54	-0.07	4.61	-0.02	4.63
Transportation	-0.62	-0.08	-0.55	0.02	-0.57
Wholesale	0.57	0.82	-0.26	-0.15	-0.11
Retail	2.31	2.36	-0.05	-0.06	0.01
Finance	1.22	0.88	0.34	-0.23	0.57
Services	7.15	5.70	1.45	-0.79	2.24
Government	-4.88	1.31	-6.20	0.27	-6.47
Total	8.72	9.60	-0.88	-1.08	0.20

Table 6. Shift-Share Analysis of Vermont Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.47	0.01	-0.48	0.03	-0.50
Ag Services	0.30	0.09	0.21	0.00	0.20
Mining	-0.15	0.16	-0.31	0.03	-0.35
Construction	-1.25	-0.12	-1.13	-0.07	-1.06
Manufacturing					
Nondurable	0.53	-1.48	2.01	0.55	1.46
Durable	5.08	-0.07	5.15	-0.01	5.16
Transportation	0.44	-0.08	0.52	0.02	0.50
Wholesale	1.58	0.82	0.76	-0.33	1.09
Retail	4.39	2.36	2.03	0.05	1.98
Finance	0.97	0.88	0.08	-0.32	0.40
Services	5.99	5.70	0.29	1.01	-0.72
Government	2.80	1.31	1.48	-0.02	1.50
Total	20.21	9.60	10.61	0.94	9.67

Table 7. Shift-Share Analysis of New Jersey Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.06	0.01	-0.07	-0.00	-0.06
Ag Services	0.09	0.09	0.01	0.00	0.01
Mining	-0.03	0.16	-0.19	-0.12	-0.07
Construction	-0.26	-0.12	-0.14	-0.00	-0.14
Manufacturing					
Nondurable	-1.01	-1.48	0.46	-0.43	0.90
Durable	-1.68	-0.07	-1.61	-0.01	-1.60
Transportation	0.19	-0.08	0.27	-0.01	0.28
Wholesale	2.01	0.82	1.19	0.05	1.14
Retail	3.05	2.36	0.69	0.04	0.65
Finance	1.20	0.88	0.32	-0.19	0.51
Services	5.88	5.70	0.18	-0.67	0.85
Government	2.46	1.31	1.14	-0.16	1.30
Total	11.84	9.60	2.24	-1.50	3.74

Table 8. Shift-Share Analysis of New York Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.15	0.01	0.14	-0.00	0.14
Ag Services	0.04	0.09	-0.05	-0.01	-0.04
Mining	-0.01	0.16	-0.17	-0.13	-0.05
Construction	-0.84	-0.12	-0.72	0.02	-0.74
Manufacturing					
Nondurable	-2.38	-1.48	-0.89	0.09	-0.98
Durable	-1.10	-0.07	-1.03	0.01	-1.04
Transportation	-0.83	-0.08	-0.75	-0.01	-0.74
Wholesale	-0.06	0.82	-0.88	0.21	-1.09
Retail	0.31	2.36	-2.05	-0.11	-1.94
Finance	0.11	0.88	-0.77	0.40	-1.17
Services	4.23	5.70	-1.47	0.52	-1.99
Government	-0.37	1.31	-1.69	0.09	-1.60
Total	-0.74	9.60	-10.34	-0.89	-9.45

Table 9. Shift-Share Analysis of Pennsylvania Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.06	0.01	0.05	-0.00	0.05
Ag Services	0.09	0.09	0.01	-0.02	0.03
Mining	0.27	0.16	0.11	0.12	-0.00
Construction	0.11	-0.12	0.22	-0.00	0.22
Manufacturing					
Nondurable	-1.90	-1.48	-0.42	-0.21	-0.22
Durable	-1.15	-0.07	-1.08	-0.03	-1.05
Transportation	0.18	-0.08	0.26	0.00	0.26
Wholesale	0.73	0.82	-0.10	-0.06	-0.04
Retail	2.64	2.36	0.28	-0.03	0.31
Finance	1.00	0.88	0.11	-0.22	0.33
Services	5.32	5.70	-0.38	-0.41	0.03
Government	0.94	1.31	-0.37	-0.28	-0.10
Total	8.29	9.60	-1.31	-1.14	-0.17

Table 10. Shift-Share Analysis of Delaware Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.67	0.01	-0.68	0.01	-0.69
Ag Services	0.23	0.09	0.14	0.00	0.14
Mining	-0.02	0.16	-0.18	-0.13	-0.05
Construction	0.62	-0.12	0.74	-0.04	0.78
Manufacturing					
Nondurable	-0.06	-1.48	1.42	-1.27	2.68
Durable	-0.14	-0.07	-0.07	0.03	-0.10
Transportation	0.53	-0.08	0.60	0.02	0.59
Wholesale	1.45	0.82	0.63	-0.35	0.97
Retail	3.31	2.36	0.95	0.27	0.67
Finance	1.07	0.89	0.19	-0.27	0.45
Services	5.92	5.70	0.22	-0.74	0.96
Government	1.50	1.31	0.18	-0.01	0.19
Total	13.73	9.60	4.13	-2.46	6.59

Table 11. Shift-Share Analysis of Washington D.C. Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.00	0.01	-0.01	-0.01	-0.00
Ag Services	0.08	0.15	-0.07	0.05	-0.11
Mining	-0.00	0.14	-0.14	-0.14	-0.01
Construction	-0.90	-0.09	-0.80	0.03	-0.83
Manufacturing					
Nondurable	-0.39	-1.51	1.12	1.18	-0.06
Durable	-0.15	-0.06	-0.09	0.06	-0.15
Transportation	-0.99	-0.16	-0.83	0.02	-0.85
Wholesale	-1.17	0.87	-2.04	-0.29	-1.74
Retail	-1.54	2.36	-3.90	-0.70	-3.20
Finance	-0.06	0.89	-0.95	-0.03	-0.92
Services	5.86	5.52	0.34	2.31	-1.97
Government	4.06	1.45	2.61	1.88	0.73
Total	4.80	9.56	-4.76	4.13	-9.09

Table 12. Shift-Share Analysis of Maryland Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.19	0.01	0.19	0.00	0.19
Ag Services	0.12	0.09	0.03	0.03	-0.00
Mining	-0.00	0.16	-0.16	-0.12	-0.05
Construction	1.07	-0.12	1.19	-0.05	1.24
Manufacturing					
Nondurable	-1.12	-1.48	0.35	0.44	-0.09
Durable	-0.61	-0.07	-0.54	0.02	-0.56
Transportation	0.34	-0.08	0.41	0.01	0.41
Wholesale	1.65	0.82	0.83	-0.14	0.97
Retail	4.71	2.36	2.35	0.44	1.92
Finance	1.45	0.89	0.57	-0.14	0.71
Services	7.89	5.70	2.19	-0.17	2.37
Government	3.95	1.31	2.64	0.47	2.17
Total	19.83	9.60	10.23	0.78	9.45

Table 13. Shift-Share Analysis of Virginia Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.45	0.01	-0.46	0.01	-0.48
Ag Services	0.21	0.09	0.12	0.02	0.11
Mining	0.57	0.16	0.41	0.10	0.30
Construction	2.38	-0.12	2.50	-0.03	2.53
Manufacturing					
Nondurable	0.52	-1.48	2.00	0.03	1.97
Durable	2.60	-0.07	2.67	0.03	2.63
Transportation	0.93	-0.08	1.00	0.01	0.99
Wholesale	2.04	0.82	1.22	-0.24	1.45
Retail	5.23	2.36	2.87	-0.10	2.97
Finance	1.89	0.89	1.01	-0.29	1.29
Services	7.74	5.70	2.04	-0.61	2.65
Government	3.09	1.31	0.77	0.73	1.04
Total	26.74	9.60	17.14	-0.32	17.46

Table 14. Shift-Share Analysis of West Virginia Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.32	0.01	-0.33	0.01	-0.33
Ag Services	0.12	0.09	0.03	-0.03	0.05
Mining	3.12	0.16	2.96	2.73	0.23
Construction	1.64	-0.12	1.76	-0.03	1.79
Manufacturing					
Nondurable	-0.11	-1.48	1.37	0.37	1.00
Durable	0.20	-0.07	0.27	0.00	0.26
Transportation	0.31	-0.08	0.38	-0.02	0.40
Wholesale	1.49	0.82	0.66	-0.11	0.77
Retail	4.63	2.36	2.27	-0.18	2.45
Finance	1.17	0.89	0.29	-0.44	0.73
Services	4.24	5.70	-1.45	-0.94	-0.51
Government	4.03	1.31	2.72	-0.01	2.72
Total	20.40	9.60	10.80	1.35	9.45

APPENDIX B

SHIFT-SHARE ANALYSES FOR

METROPOLITAN AND NONMETROPOLITAN COUNTIES IN THE NORTHEAST

Table 1. Shift-Share Analysis for Greater Metropolitan Core Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.02	0.01	0.01	-0.01	0.02
Ag Services	0.03	0.09	-0.07	-0.04	-0.03
Mining	0.01	0.12	-0.12	-0.11	-0.01
Construction	-0.98	-0.10	-0.88	0.01	-0.90
Manufacturing					
Nondurable	-2.97	-1.51	-1.46	0.07	-1.53
Durable	-1.63	-0.06	-1.57	0.01	-1.58
Transportation	-0.94	-0.08	-0.87	-0.02	-0.85
Wholesale	-0.73	0.86	-1.60	0.30	-1.89
Retail	-0.67	2.36	-3.03	-0.19	-2.84
Finance	-0.08	0.89	-0.98	0.51	-1.49
Services	3.69	5.69	-2.00	1.00	-3.00
Government	0.18	1.31	-1.13	-0.17	-0.96
Total	-4.09	9.60	-13.69	1.38	-15.07

Table 2. Shift-Share Analysis for Greater Metropolitan Suburban Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.06	0.01	0.05	-0.00	0.05
Ag Services	0.10	0.09	0.01	0.05	-0.04
Mining	0.07	0.12	-0.05	-0.05	-0.00
Construction	0.85	-0.10	0.95	-0.03	0.97
Manufacturing					
Nondurable	0.79	-1.51	2.31	0.45	1.86
Durable	0.76	-0.06	0.82	-0.00	0.83
Transportation	1.09	-0.08	1.17	0.02	1.15
Wholesale	3.03	0.86	2.17	-0.13	2.30
Retail	5.59	2.36	3.23	0.48	2.74
Finance	2.28	0.89	1.38	-0.31	1.69
Services	9.52	5.69	3.83	-0.35	4.19
Government	1.55	1.31	0.24	0.27	-0.03
Total	25.70	9.60	16.10	0.40	15.70

Table 3. Shift-Share Analysis for Medium Metropolitan Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.04	0.01	0.03	-0.00	0.03
Ag Services	0.06	0.09	-0.03	0.00	-0.03
Mining	-0.01	0.12	-0.13	-0.05	-0.08
Construction	0.08	-0.10	0.17	-0.00	0.18
Manufacturing					
Nondurable	-1.02	-1.51	0.49	-0.19	0.68
Durable	0.24	-0.06	0.30	-0.02	0.32
Transportation	0.20	-0.08	0.28	0.01	0.27
Wholesale	1.46	0.86	0.59	-0.14	0.73
Retail	3.58	2.36	1.22	-0.00	1.22
Finance	1.36	0.89	0.47	-0.30	0.76
Services	6.26	5.69	0.57	-0.89	1.46
Government	2.08	1.31	0.77	0.02	0.75
Total	14.33	9.60	4.73	-1.55	6.28

Table 4. Shift-Share Analysis for Small Metropolitan Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.06	0.01	-0.07	0.01	-0.08
Ag Services	0.10	0.09	0.01	-0.02	0.03
Mining	0.03	0.12	-0.09	0.02	-0.12
Construction	0.41	-0.10	0.51	-0.00	0.51
Manufacturing					
Nondurable	-2.19	-1.51	-0.67	-0.40	-0.27
Durable	2.04	-0.06	2.10	-0.01	2.11
Transportation	0.25	-0.08	0.33	0.00	0.32
Wholesale	1.49	0.86	0.63	-0.20	0.83
Retail	3.90	2.36	1.55	0.03	1.52
Finance	1.41	0.89	0.52	-0.36	0.88
Services	5.51	5.69	-0.18	-0.47	0.29
Government	2.89	1.31	1.58	-0.13	1.71
Total	15.80	9.60	6.20	-1.54	7.74

Table 5. Shift-Share Analysis for Urbanized Adjacent Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.15	0.01	0.14	0.02	0.12
Ag Services	0.46	0.09	0.37	0.04	0.33
Mining	0.27	0.12	0.15	0.07	0.08
Construction	0.27	-0.10	0.37	0.00	0.37
Manufacturing					
Nondurable	-1.79	-1.51	-0.27	-0.36	0.09
Durable	1.71	-0.06	1.78	-0.01	1.79
Transportation	0.00	-0.08	0.08	0.01	0.06
Wholesale	1.41	0.86	0.55	-0.45	0.99
Retail	4.77	2.36	2.41	0.07	2.34
Finance	0.95	0.89	0.05	-0.44	0.49
Services	6.15	5.69	0.46	-1.01	1.47
Government	2.00	1.31	0.69	0.19	0.49
Total	16.37	9.60	6.77	-1.85	8.62

Table 6. Shift-Share Analysis for Urbanized Nonadjacent Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.43	0.01	-0.44	0.04	-0.47
Ag Services	0.18	0.09	0.09	-0.01	0.10
Mining	0.54	0.12	0.42	0.47	-0.06
Construction	0.58	-0.10	0.67	-0.01	0.68
Manufacturing					
Nondurable	-0.14	-1.51	1.37	0.27	1.10
Durable	1.82	-0.06	1.88	0.00	1.88
Transportation	0.37	-0.08	0.45	0.00	0.44
Wholesale	1.64	0.86	0.77	-0.27	1.05
Retail	5.13	2.36	2.77	-0.11	2.88
Finance	0.97	0.89	0.08	-0.36	0.44
Services	5.48	5.69	-0.21	-0.27	0.06
Government	5.96	1.31	4.65	0.27	4.38
Total	22.10	9.60	12.50	0.03	12.47

Table 7. Shift-Share Analysis for Less Urbanized Adjacent Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	0.31	0.01	0.30	0.04	0.26
Ag Services	0.32	0.09	0.23	-0.00	0.23
Mining	0.73	0.12	0.60	0.52	0.09
Construction	1.77	-0.10	1.86	0.01	1.85
Manufacturing					
Nondurable	-0.16	-1.51	1.35	-0.21	1.56
Durable	1.66	-0.06	1.72	-0.00	1.72
Transportation	0.57	-0.08	0.64	0.02	0.63
Wholesale	1.38	0.86	0.52	-0.46	0.98
Retail	4.03	2.36	1.67	-0.13	1.80
Finance	1.18	0.89	0.29	-0.54	0.83
Services	5.91	5.69	0.22	-0.83	1.06
Government	0.67	1.31	-0.64	0.33	-0.97
Total	18.38	9.60	8.78	-1.25	10.03

Table 8. Shift-Share Analysis for Less Urbanized Nonadjacent Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-0.35	0.01	-0.36	0.05	-0.41
Ag Services	0.18	0.09	0.08	0.07	0.01
Mining	1.21	0.12	1.09	1.02	0.07
Construction	0.97	-0.10	1.06	-0.01	1.07
Manufacturing					
Nondurable	0.67	-1.51	2.18	-0.61	2.79
Durable	3.36	-0.06	3.42	0.01	3.41
Transportation	0.51	-0.08	0.59	0.01	0.58
Wholesale	1.78	0.86	0.92	-0.32	1.25
Retail	4.19	2.36	1.83	-0.07	1.91
Finance	1.01	0.89	0.11	-0.54	0.66
Services	5.04	5.69	-0.65	-0.53	-0.13
Government	2.83	1.31	1.52	-0.13	1.65
Total	21.41	9.60	11.81	-1.06	12.87

Table 9. Shift-Share Analysis for Totally Rural Adjacent Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-1.13	0.01	-1.14	0.09	-1.23
Ag Services	0.25	0.09	0.16	0.05	0.11
Mining	3.21	0.12	3.09	0.77	2.32
Construction	1.48	-0.10	1.57	-0.10	1.67
Manufacturing					
Nondurable	0.13	-1.51	1.64	-0.47	2.12
Durable	3.06	-0.06	3.12	0.03	3.09
Transportation	2.20	-0.08	2.27	-0.03	2.24
Wholesale	1.64	0.86	0.77	-0.60	1.37
Retail	3.73	2.36	1.37	-0.50	1.88
Finance	0.67	0.89	-0.23	-0.59	0.36
Services	3.87	5.69	-1.82	-1.28	-0.54
Government	2.17	1.31	0.85	0.47	0.38
Total	21.27	9.60	11.67	-2.11	13.78

Table 10. Shift-Share Analysis for Totally Rural Nonadjacent Counties Relative to the Northeast, 1970-1979

Industry	Actual Growth	Standard Growth	Net Relative Change	Industrial Mix	Local Share
Agriculture					
Farming	-1.23	0.01	-1.24	0.11	-1.35
Ag Services	0.04	0.09	-0.05	0.20	-0.25
Mining	3.22	0.12	3.10	1.35	1.76
Construction	2.27	-0.10	2.37	-0.02	2.39
Manufacturing					
Nondurable	-1.33	-1.51	0.18	-0.31	0.49
Durable	5.93	-0.06	6.00	0.03	5.97
Transportation	1.95	-0.08	2.02	0.02	2.01
Wholesale	2.26	0.86	1.40	-0.50	1.89
Retail	4.33	2.36	1.97	-0.24	2.21
Finance	1.46	0.89	0.56	-0.57	1.13
Services	6.49	5.69	0.80	-0.36	1.16
Government	3.14	1.31	1.82	0.14	1.69
Total	28.53	9.60	18.93	0.16	18.77